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Title of Thesis/Project/Extended Essay
Arson Prevention and Control: A Canadian Perspective

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ABSTRACT

It is the contention of this thesis that there is little indigenous research on arson in Canada. Most of the prevention and control efforts related to arson have originated in the United States. There is evidence that the programs resulting from these efforts may not be suitable for Canadian needs, and in fact are of questionable value for American arson administrators.

This thesis explores the development of a perceived arson problem in the United States and illustrates how the "American arson movement" which followed, produced results of questionable benefit. The current state of arson prevention and control in Canada, the reporting and recording procedures associated with arson offences, and the apparent lack of consistent terminology, are then presented to demonstrate that Canadians have a poor grasp of the magnitude and frequency of arson and may have used poor judgement in implementing programs that developed in the United States.

A number of common problems associated with program evaluation are discussed, followed by a description of the strengths and weaknesses of four types of arson prevention programs. It is then suggested that arson administrators may wish to look beyond arson specific research and consider the application of recent developments in Management of Criminal Investigations (MCI) research.
A background to MCI research is provided and these developments are examined in relation to the management of arson investigations.

The final Chapter of text reviews the powers and expertise of the two primary actors in arson investigation - police and fire service members, and considers the use of a team concept with both services working together from cause to conviction.

The summary includes suggestions for change as well as for future research.
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# TABLE OF CONTENTS

Approval ............................................................. ii  
ABSTRACT ............................................................. iii  
ACKNOWLEDGEMENTS .................................................. v  
TABLES ........................................................................  

I. INTRODUCTION ....................................................... 1  
Purpose ................................................................... 3  
Methodology .............................................................. 4  
Limitations of the Study ................................................. 7  

II. THE ARSON MOVEMENT ........................................... 10  
The Assumption of Apathy ............................................. 13  
Demonstrating the Need ................................................ 16  
Causes of Confusion .................................................... 23  
"...a dramatic decline in arson." ..................................... 29  
Results of the Arson Movement ....................................... 34  

III. FIRE CRIME IN CANADA ......................................... 37  
Sources of Canadian Fire Crime Statistics ......................... 38  
Fire Crime Reporting Procedures .................................... 45  
The Effect of Case Law on Fire Crime Classification .......... 50  
In Search of Incendiarism ............................................... 56  
Defining Fire Crime Types ............................................. 60  
Summary .................................................................. 67  

IV. PROGRAM EVALUATION ........................................... 70  
Evaluation: Who Should Evaluate? ................................. 73  
Evaluation: The Time Factor ......................................... 77  
Evaluation: "Traditional" or the "Alternative"? ................. 79  

vi
TABLES

TABLE I  Seattles Arson Dollar Loss .................30
TABLE II  Seattles Yearly Arson Loss as
Presented by the Washington State
Fire Marshal's Office .................32
TABLE III  Who actually conducts each phase of an
arson investigation? (O.A.I. Survey) .......39
TABLE IV  Fire crime statistics collected by my
agency are an accurate reflection of the
amount of arson in my jurisdiction.
(O.A.I. Survey) ..........................40
TABLE V  Explain the difference between
suspicious and undetermined cause
fires... (O.A.I. Survey) ............41
TABLE VI  Fire Crimes in Canada: Yearly
Increases and Dollar Losses ...........44
TABLE VII  Fire Crimes in Canada: Differences
Between Incendiary and Arson Fires ....48
TABLE VIII  Is there written policy in your
jurisdiction defining when a fire is
to be classified in your reports as:
(O.A.I. Survey) ..........................49
TABLE IX  A Sample of Provincial Fire
Crime Classifications.................57
TABLE X  A team concept (involving firefighters
and police officers from start to
finish) is the best way to conduct a
fire-crime investigation.
(O.A.I. Survey) .......................125
TABLE XI  The investigation of arson is totally
different from the investigation of
any other crime. (O.A.I. Survey) .......134
TABLE XII  Do you perceive any problems in your
dealings with laboratories?
(O.A.I. Survey) ..........................137
TABLE XIII  Selected Offences for 1979 ...............160
I. INTRODUCTION

Destruction of life and property resulting from the criminal use of fire occurs with alarming frequency in some jurisdictions in Canada and the United States. In spite of the fact that fire-crime — or arson — results in a dollar loss far greater than that attributed to bank robberies¹ and rivals the yearly dollar loss in Canada attributed to break enter and theft², research concentrating on arson has received little serious attention from any level of government in Canada or from Canadians involved in the study of criminology. Arson in the United States, however, has received considerable attention from various government agencies and criminologists. Since 1974 there have been six major research studies sponsored by the Law Enforcement Assistance Administration³ (LEAA), United States Department of Justice, that address the specific crime of arson.

¹It has been estimated that the annual dollar loss from bank robberies in Canada, from 1974 to 1979, averaged 2 million dollars (See the Insurance Crime Prevention Bureau, Annual Report of the General Manager, 1974 to 1979)

²The combined dollar loss from all thefts — theft over and under 200 dollars, motor vehicle thefts, and break and enter and theft — has been estimated as 274 million for 1980 (Lyndon, 1981) compared to a 180 million direct dollar loss from incendiary fires in 1980 (Dominion Fire Commissioner, Annual Report, 1980).

³April 15th 1982 the Law Enforcement Assistance Administration was officially terminated. On that date all continuing LEAA programs were transferred to the parent agency, the Office of Justice Assistance, Research and Administration (Criminal Justice Newsletter, vol. 13 no.2, 1/18/82).
The studies: Moll (1974); Boudreau et al. (1977); Tauber (1978), Webster and Mathew (1979); Abt Associates (1980); and Battelle (1980), are primarily state-of-the-art approaches to the problems of arson and arson investigation although the latter three also examine those approaches that currently appear to hold the most promise in preventing and suppressing arson in the United States. In addition, other American government agencies, and most notably the Federal Emergency Management Agency (FEMA), have contributed to an American literature supply that now can be described as voluminous. In Canada the opposite is true. There are no equivalent Canadian documents.

Canadian arson administrators rely heavily on American literature for training purposes, technological developments, and organizational improvement. While not denying that Canada has gained from American arson research, involvement in American agencies such as the National Fire Protection Association has led to a situation where:

There is no research and development of consequence in Canada in the areas of firefighting methods and equipment for public fire protection. Canadian fire services are dependent upon American sources for this and their work is not always appropriate to our needs. (Switzer and Baird, 1980:21).


5 The National Fire Protection Association, an American organization with roughly 32,000 members (70% from the insurance industry and 30% from the fire service) is a major source of film, manuals, and audio visual fire service training aids in Canada.
Although this statement refers to "areas of firefighting methods and equipment" it is equally applicable to the prevention and control of fire-crime in Canada.

Purpose

Given the paucity of Canadian arson literature and research, and as American fire research in general, and arson research in particular, may not be relevant to Canada, it is the purpose of this thesis to:

1. Describe the movement in America that led to an increase in the amount of arson-specific research and illustrate why this research may not be relevant to Canada.

2. Examine the collection and recording of Canadian fire-crime statistics; the effect of Canadian case law on fire-crimes and related statistics; and the importance of accurate fire-crime classifications to arson research.

3. Identify a number of problems associated with Program Evaluation in general and arson Program Evaluation in particular.

4. Appraise a number of arson prevention programs and associated evaluative efforts in the United States and Canada.

5. Outline the findings and reforms of the Rand Corporation study of the criminal investigation process and relate the reforms of that study to the management of arson investigations.

6. Relate recent management of criminal investigation studies to the management of arson investigations.

7. Discuss the powers and obligations of police and fire services in western Canada with respect to arson investigation; the expertise that each service is supposed to offer; and the problems with combining the two services.
8. Summarize the research conducted; present conclusions based on this research, and conclude with suggestions for further research likely to produce meaningful direction for arson investigation managers.

The areas outlined above are a sequential summary of the eight chapters of text in this thesis. The text of each chapter should clarify the relationship between chapters and the chosen order.

Methodology

In addressing the purposes of this thesis a wide variety of American and Canadian arson literature was reviewed. Literature produced by or for the United States government was by far the most extensive. Some of this literature, not intended to be "scholarly" in nature, was published with the general public or police and fire service members in mind. Most articles and reports, written by leading arson investigators (which provide valuable insight into problem areas) tend to emphasize opinions rather than empirical knowledge. These practitioner/authors were often forced to rely on "feelings" since empirical studies into arson organization (in the U.S.) did not begin to emerge until the mid 1970's. Including these sources was vital to illustrate what is referred to in this thesis as the American "arson movement".

While there are numerous articles addressing the psychology of the fire-setter and the forensic aspects of arson investigation, literature adopting a criminological or
sociological perspective is scarce. A search of all available scholarly journals uncovered only three such articles specifically relating to arson, Hershbarger and Miller (1978), Hurley and Monahan (1969) and, Brady (1982).

Canadian literature and research on arson is virtually non-existant. Persons interested in arson in Canada must rely on limited information provided by a handful of government agencies. In this thesis, Canadian arson information was obtained from: Statistics Canada annual Uniform Crime Reports; annual reports of the Dominion and Provincial Fire Commissioners; British Columbia Coordinated Law Enforcement (CLEU) reports; studies of provincial fire services (Keenleyside, 1975; Wright 1975); one National Research Council (NRC) report on fire services in Canada in general6; and a limited number of articles in magazines and newspapers. With the exception of psychology and forensic science journals, there are no articles that specifically relate to arson in any Canadian journals that may be considered scholarly in nature7.

In an attempt to make a contribution towards filling the existing Canadian arson information void a questionnaire was developed and distributed to members of the International Association of Arson Investigators, British Columbia chapter 15, 6 Combined, the CLEU, NRC, and Provincial fire studies devote roughly fifteen pages to discussion of arson.
7 For example, the Canadian Journal of Criminology, the Canadian Journal of Sociology and Anthropology or Canadian Public Administration.
who attended a three day arson investigation seminar in Nanaimo B.C. May 18-20, 1982. This questionnaire, entitled "The Organization of Arson Investigation in British Columbia" (OAI), was developed by extracting sections of three American arson surveys conducted by Moll (1974), Boudreau et al. (1977) and Webster and Mathew (1979). With the assistance of personnel from the Insurance Crime Prevention Bureaux (Pacific Region) and British Columbia Justice Institute Fire Academy instructors, questions were altered to suit the Canadian context. The following areas were addressed:

- Agencies involved in arson investigation in each respondents jurisdiction.
- Actual involvement by different agencies in the respondents jurisdiction.
- The organization of arson investigation units and whether formal policy dictates that organization.
- Whether policy dictates the determination of fire-crime categories such as arson, incendiary, suspicious or undetermined.
- The identification of problems with crime laboratories (if any).

In addition, eleven Likert-scale questions were asked concerning:

- Case selection (2 questions),
- Confidence in arson statistics (1 question),
- Differences in who investigates arson (3 questions),
- Cooperation between agencies (4 questions),
- Support from government in general (1 question).

Of the 65 individuals registered for the seminar a total of 32 responses representing 20 different jurisdictions in British Columbia, were received. Frequency distributions were calculated
for the 32 responses. The results of the "Organization of Arson Investigation" (O.A.I.) survey have been inserted at various appropriate points throughout this thesis. The questionnaire has been attached as an Appendix.

Limitations of the Study

With respect to the formal survey conducted for this thesis, it must be stressed that the results are based on a very small number of respondents who were not randomly selected. The respondents were individuals involved on a daily basis with one or more of the various phases of arson investigation in different locations throughout British Columbia.

A limitation of much of the material used in this study, (and also a limitation of this thesis) is that there is a bias in favor of concentration on fire-crime in urban centers in contrast to fire-crime in rural areas. Numerous factors, such as fewer resources, jurisdictional fragmentation, lower population density, and the absence of some agencies in some areas, combine to make much of the content of this study inapplicable to rural areas.

A major problem encountered during the research conducted for this thesis was the lack of standard terms. Many reports use the words arson, incendiary, suspicious, unknown, and

\[8\] A number of informal interviews were conducted with police, fire and insurance personnel during January - July, 1981.
undetermined cause fire, interchangeably or collectively. While it may be said that there is intra-agency standardization of terms (although this too is open to debate) there are few guidelines to ensure inter-agency standardization. The material discussed in chapter II will illustrate the confusion and problems associated with a lack of standard terms. The general fire-crime headings - arson and incendiarism - as well as the different types of fire-crime, will be explained in chapter III.

Three important areas have not been discussed in detail in this thesis. They are:

- the role of the insurance industry,
- the psychology of the fire-setter,
- the creation and use of "arson task forces".

The role of insurance - private agencies in a public arena - although important, has not been discussed in any detail in this thesis. Emphasis is on police and fire services since there is evidence that the insurance industry (regardless of the motive) has contributed to arson prevention and control equally or more than the government agencies to whom the responsibility rightly belongs.

The psychology of the fire-setter is one of the few areas that has experienced considerable attention by scholars and

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For example, the National Fire Protection Association (largely an insurance organization) produces training aids for arson investigation, conducts arson seminars, and sponsors preventive programs. The Insurance Crime Prevention Bureaux lends expertise to many investigations, as well as providing training for public officials; and insurance companies in Canada contribute roughly 2% of their profits to the maintenance of Provincial fire commissions.
practitioners, yet few results of practical significance have emerged. This statement is explained in chapter III.

Arson Task Forces\textsuperscript{10} are not a viable concept in Canada. They require collaborative effort and sustained interest from numerous agencies. The resources needed to convene a task force are unlikely to become available in any Canadian jurisdiction unless there is a drastic increase in the incidence of arson, or a perceived increase such as that which resulted from the American arson movement.

Against this background, chapter I traces the development of a recent surge of interest in arson in the United States.

\textsuperscript{10}The term "Arson Task Force" refers to a combined effort of all available persons or agencies who have an interest in arson prevention and control and would include, for example, representatives from police, fire, and insurance services, the legal and business communities, media, and various agencies of local government: mayor, tax assessment, finance etc.
II. THE ARSON MOVEMENT

Despite the potential devastation of each fire-crime incident arson appears to be of little concern to the general public and until recent years was often neglected by fire and police services. Arson, to the police, was considered a fire service problem, not a suitable area of concern for "crime fighters" (Switzer and Baird, 1980:70; Coordinated Law Enforcement Unit, 1975:14). Arson, to the fire service (once suppression activities were completed) was often considered just a crime, no longer of concern to "fire fighters" (Keenleyside, 1975:78). In addition, as a victim of what political scientists refer to as "jurisdictional fragmentation" (McDavid, 1979), the prevention and control of arson during the 1970's stimulated concern among no more than a handful of American and Canadian politicians. Lacking in guidance, the organization of arson investigation, the recording and collection of data, and preventive efforts, were sporadic and confused events.

In response to this situation and with a number of devastating arson fires in urban centers such as Boston (Abt Associates, 1979), Chicago (Illinois Investigating Committee, 1979), and Los Angeles (District Attorney, 1978), a general wake-up call was heard. In the U.S. three Senators were primarily responsible for initiating and directing numerous sub-committee investigations into arson - Senators Percy (R-ILL.), Dunn (D-Ga.) and Glenn (D-Ohio). A review of Canadian federal Hansard (up to and including 1979) suggests that Members of Parliament have never expressed concern over arson.
1978), and New York City (Krajick, 1979) acting as catalysts, American fire officials in the 1970's were able to gain public attention beyond the ephemeral interest less sensational news media accounts had been able to generate.

Perhaps the most widely publicized, and particularly devastating, series of arsons occurred in Boston's Symphony Road area. Aside from the devastation, this city's problem was particularly captivating because it involved arson frauds orchestrated by police, fire, and insurance officials (Bradley, 1982; Zanger, 1980). With the publicity of these incidents, and given that the existing arson data were unreliable and incomplete, American arson experts, all upper-echelon fire administrators, became the "opinion leaders" (Vernon, 1972) behind what is referred to in this thesis as the American arson movement.

The sociological concept of "movement" is more typically associated with equal rights and social change. It will be demonstrated, however, that the surge of research on arson in the U.S. was indeed the result of a movement. Consider the following definition:

A social movement is a set of attitudes and self conscious action on the part of a group of people directed toward change in the social structure and/or ideology of a society and carried on outside ideologically legitimate channels or which uses these channels in innovative ways. (Ash, 1972:6).

All of the essential elements of a movement as defined by Ash are present in the movement described in this chapter.
Based on information from a small group of American arson experts, government funded research began to emerge in the late 1970's that relied heavily on:

information channeled through such individuals who...edit consciously or unconsciously the content of the message as they receive and transmit it. (Vernon, 1972:570).

The result was a series of U.S. Government publications that were accepted as empirically sound evaluations of the arson problem. In numerous instances however, these publications accepted the opinions of the experts without question and thus perpetuated much of the confusion associated with the crime.

A major objective of the American arson movement was the reclassification of arson in the Federal Bureau of Investigation's (FBI) Uniform Crime Reports (UCR) from a Part II crime to a Part I crime. It was hoped that reclassification would accomplish two major goals:

One, it would stimulate police and fire authorities to become more involved in the pursuit of the arsonist. It would encourage them to reset their priorities on a real-world basis which reflects the true, documented impact of arson on their communities.

And two, reclassification would for the first time provide us with meaningful statistics on the true volume of arson, the number of persons arrested and the number of convictions, as well as other important trends. (Wise, 1978:62).

From a review of the non-technical literature relating to arson a third goal of reclassification has become apparent, namely,

\footnote{The FBI compile yearly and comprehensive data on Part I crimes. Prior to October 1978 there were seven such crimes: murder, robbery, rape, theft, motor vehicle theft, assault and, burglary. In October of 1978 the FBI under the direction of the U.S. Congress, reclassified arson to Part I status. For Part II offences only arrests are reported.}
that of gaining increased federal funding to train arson investigators, develop arson labs and promote general arson research. All are legitimate goals with worthwhile objectives, and although few would deny that some benefit accrued from pursuit of these goals, it is suggested that arson research developed in the face of an apparently rampant arson crime wave, and did so without benefit of adequate planning and testing. The result was expenditure of millions of dollars\(^3\), creation of dozens of new agencies\(^4\) and duplication of untested arson prevention programs.

The Assumption of Apathy

Karchmer (1978:33) notes that "those of us who are intent on combatting arson must first win the fight against public indifference and governmental inertia." Often, public indifference and governmental inertia go hand in hand; but why has the public been so indifferent to this frightening crime?

That the public has been apathetic is primarily a result of their perception of arson compared to crime in general. For example, Newman (1972:199) while discussing perceptions of crime notes that "Street crimes and burglaries are the most threatening because they are crimes of personal confrontation and, hence, the most destructive to the feelings of well being,\(^3\)"

\(^3\)It may be argued that it was the availability of LEAAs' widely sought after funds that prompted the American arson movement.

security and stability." While it may be argued that nothing could be more destructive of the "feeling of well-being" than to watch ones' home burning, the public do not consider the probability of being the victim of an arson as high as the probability of being the victim of an assault, a rape or a break and enter. With respect to arson the "next victim factor" is too remote (Battle and Weston, 1978:13).

Statements that the public has been apathetic to the crime of arson are based, however, on subjective opinions. It appears that few, if any, victimization and "Fear of Crime" surveys gather data relating to arson. National Crime Surveys conducted by the U.S. Department of Justice exclude any reference to arson; a situation which has not changed with the reclassification of arson in the U.S. from a Part I to a Part II crime. In the preponderance of research into the fear of crime the major emphasis has been upon "street crimes", that is crimes against the person in public places. Studies that do analyse crimes against property most often chose burglary (Dubow et al., 1979:6).

In Canada and the United States, national crime surveys utilize "Incident Screening". The surveys are designed to elicit responses which indicate the characteristics of criminal incidents; the actual category of crime is determined at the analytic stage (Evans and Leger, 1979). This procedure is

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5In this writers' opinion arson is a crime of violence, nonetheless it is primarily directed at property.
necessary since few lay-persons know what essential elements constitute a specific offence. Although the Canadian national crime survey included a group of questions referring to vandalism, these are all inclusive - vandalism by fire is indistinguishable from vandalism by spray painting, etc.

Assuming that the public is apathetic to the crime of arson, a few authors have offered explanations of this attitude. One such explanation, which may be more applicable to arson-for-profit, is the general public attitude that the insurance companies can easily absorb the cost (Percy, 1980; Miksic, 1978). Further, arson is a crime often committed by "seemingly innocent citizens who manipulate the complexities and weaknesses of insurance laws for their own economic gain" (Webster and Mathews, 1979:4). Many are decent law abiding citizens caught in a financial bind; a situation which may elicit feelings of empathy from neighbors and friends rather than disgust and distrust. Whether such - "But for the Grace of God" - attitudes are partly responsible for the low priority assigned to arson is unknown. It is interesting to note however, that in this respect the crime of arson is analogous to the crime of impaired driving. Both are potential deadly crimes yet offenders do not seem to receive the stigma of "criminal" so readily attached to those who rob, steal or assault.

One seldom discussed explanation for public, scholarly, and government apathy to arson is that in many jurisdictions the crime of arson is too infrequent to cause general public alarm.
Considering that crime in general is a rare event (Mayhew et al., 1979; Clarke, 1980) the arson data that existed in the 1970's demonstrate that in most areas of North America, arson was also a rare event. Although known arson incidents may be rare in number, few would argue against the potential seriousness of each fire incident. Recognizing that a portion of "unknown cause" and "undetermined cause" fires will likely have been arson fires, the existing data reflected a minimal level of arson in the U.S. and should have been ample evidence of the seriousness of the arson problem in certain U.S. jurisdictions. Although this sentiment may have been shared by those involved in arson prevention and control, the apparent apathy of Americans called for innovative methods to illustrate the need for increased concern.

Demonstrating the Need

In attempting to prove the gravity of arson to an apparently apathetic public, press, and Federal Government, the American officials and researchers involved appeared to rely on one main strategy. That strategy was to denounce the existing statistics as inaccurate and incomplete, and substitute them with data which for all practical purposes were even more questionable.

The origin of the arson movement that led to the reclassification of arson as a Part I crime in the U.S. and
subsequently to the allocation of increased federal funding for combatting the crime, can be traced to Moll (1974). This report was the first of three Law Enforcement Assistance Administration (LEAA) reports which dealt with problems affecting the fire service as well as the police (the others were: Boudreau et al., 1977; and Tauber, 1978). Central to these government reports were the opinions of many well recognized arson investigation experts. In turn, the arson experts frequently quote the government reports in their own publications.

Quoting from the Moll report, Battle and Weston, American arson investigation experts, noted that:

...arrests are made in only 4.5% of the estimated incendiary fires. This is much lower than the clearance rates for 'Part-One' crimes of murder, manslaughter, forcible rape and aggravated assault which are over 50 per cent. (Battle and Weston, 1978:10).

In effect Moll, and subsequently Battle and Weston, are comparing two different categories; arrest rates for arson to clearance rates for other crimes. Arrest rates are a sub-category of clearance rates and with a few exceptions will always appear lower. Comparing the arrest rate for arson to the arrest rate for other offences may not result in such extreme differences. In fact there are examples where the "clearance of fires established as incendiary by arrest" have been estimated at 24 to 50% (Tauber, 1978:48) Figures such as these compare

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6 There are certain offences, usually police initiated, where the arrest rate may equal the clearance rate. For example 100% of all impaired driving offences are cleared by charge (arrest) because the number of known offences to the police will always equal the number of impaired drivers that they arrest.
favorably with the arrest rates of other crimes such as theft, robbery and break and enter.

In addition to the problem of comparing arrest rates with clearance rates, further distortion is caused by comparing arson to murder, manslaughter, forcible rape and aggravated assault. A certain percentage of these crimes are "victim-precipitated" involving an assailant whose identity is known to the victim or his/her friends or relatives. The fact that murder (all categories) is the most often cleared serious criminal offence is not necessarily the result of sophisticated police investigations but more likely the fact that relatives and friends are often responsible7. One could argue that certain types of arson - such as arson for revenge and arson for profit - are also victim precipitated but only arson for revenge has the potential to supply investigators with easy access to suspect information.

Boudreau et al. (1977:29) also compare the arrest and conviction rates of other crimes to the crime of arson. Listing data in a table they indicate that in the U.S. in 1974, 98% of all murders were cleared by arrest. Boudreau et al. quote their source as the 1974 FBI Uniform Crime Reports. The 98% figure simply does not exist. It may be created however, by dividing the total number of murders committed by the total number of

7For example, in Canada in 1980, 370 of the 593 reported murders were incidents involving family relations, business, close, or casual acquaintances (Statistics Canada, Homicide Statistics, 1980:17-21).
persons arrested; a result which ignores the fact that not all victims are murdered by only one person. A more accurate figure, which may be found on page 19 of the same 1974 Uniform Crime Reports, is 80%. While this apparent oversight is not, by itself, a particularly devastating criticism, it should be noted that it is only one of the many distorted facts and figures presented throughout the Boudreau et al. report.8

Boudreau et al. correctly quote from the FBI Uniform Crime Reports (1974) that in 1974 there were 16,900 arrests for arson. They then calculate a 9% arrest rate by dividing the 16,900 figure by 187,000 - the estimated number of arson and suspected arsons in 1974 as calculated by the National Fire Protection Association (NFPA) (Boudreau et al., 1977:29). A closer look at this 9% figure reveals that it is of limited if not questionable value. The FBI constructed their 16900 arrest figure by projecting the responses of 5298 police agencies representing a population of roughly 134 million (UCR, 1974:116) while the NFPA constructed their 187,000 incidents figure based on a sample of 2500 fire departments which had been pre-selected as most likely to respond (Tauber, 1978:84).

Numerous authors present what they believe to be U.S. national data on the incidence of arson. While most indicate that such figures are only estimates the word "estimate" is used rather loosely. In the United States for the year 1974 the

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8 This comment is restricted to the first fifty pages of the Boudreau et al. report, the last fifty pages refer to technical aspects of arson investigation and are beyond the scope of this thesis.
dollar loss for incendiary and suspicious fires was estimated as $550 million (Battle and Weston, 1978:15); $1.2 billion (Harshberger and Miller, 1978:275); $1.3 billion (Boudreau et al., 1977:1) and; $616 million (Boudreau et al., 1977:14), the last two figures are from the the same publication.

In the U.S. for the year 1975 two figures which have been presented are: 144,100 incidents of arson causing $633 million worth of damage (Battle and Weston, 1978:15) and; $2 billion in damage (Harshberger and Miller, 1978:275). For the same year Boudreau et al. report that there were 213,900 incendiary and suspicious fires causing $708 million in damage. Boudreau et al., not satisfied with these figures, suggest that by including one half of all fires of unknown cause the number of arson incidents could easily have reached 511,700 causing $1.4 billion in damage (Boudreau et al., 1977:14).

The majority of figures presented above are purported to be based on surveys conducted by the NFPA. Prior to 1977 the NFPA, obtained its figures from a survey of 2500 fire departments out of approximately 24,000. This system was updated and revised in 1976 and now involves a sample of 6400 fire departments (Boudreau et al., 1977:4 ; Tauber, 1979:84). As the Data collection system of the NFPA was revised during 1976, they provide no data for that year. However, "data" were available from other sources:

The National Insurance Office confirms that an estimated 4 billion was paid directly by insurance companies for arson fires in 1976. (Brady, 1982:252).
A number of major changes made to the yearly NFPA fire survey had special significance to the study of arson. For example:

Results for 1977 are for structure fires; results for earlier years are for building fires. In addition to buildings, the structure category includes principally open platforms, bridges, roof assemblies over open areas, tents, air supported structures and grandstands. (Carter, 1980:12).

Carter (1980) points out that the "significantly improved statistical methods" adopted by the NFPA in combination with the definitional expansion of "structures" negates a strict comparison between 1977 results and past results. In spite of this caution he lists the data for odd numbered years from 1951 to 1977. The figures for 1977, which Carter quotes from the NFPA are; 177,000 incendiary and suspicious fires causing $1.159 billion worth of damage. Krajick (1979:6) also quoting the NFPA notes that "144,000 incendiary fires destroyed $1.6 billion worth of property in 1977, killed 700 people and injured 10,000 to 15,000.". Webster and Mathews (1979:12) listing the American Insurance Association as their source state that there were 242,000 arson fires in 1977 causing a total of $1.5 billion worth of damage.

Figures for 1978 range from $1.08 billion worth of damage due to arson and suspected arsons (Swift, 1980:5) to $1.34 billion (Carter, 1980:46).

Swift (1980:6) notes that arson fires may have cost insurance companies over $1.5 billion in 1979 and "the related consequential losses might swell to $10 to $15 billion.". Brady
lists the total number of known incidents of arson in 1979 as 148,500. Walsh (1979) states that according to the Insurance Service Office the direct cost of arson annually in the U.S. is approximately $4 billion and if all other costs, such as firefighting services, insurance company costs and among others, medical expenses, the total cost of arson to society could well be $10 billion (Walsh, 1979:17).

The diverse figures presented above eventually began to emerge in testimony submitted to the United States Senate. In 1978 the chairman of the Permanent Subcommittee on Investigations opened the Arson-for-Hire hearings by stating that: "arson is our costliest crime with losses estimated at $2 billion a year" (U.S. Senate, 1978b:1).

One U.S. Senator (Percy D-ILL.) has claimed responsibility for initiating a series of U.S. General Accounting Office investigations into arson control in America. Senator Percy was also the chairman of the Subcommittee on Investigations who made the opening statement in the previous paragraph. In a public statement Senator Percy noted:

The four federal agencies charged with law enforcement responsibilities in arson related crimes; the FBI, the Internal Revenue Service, the Treasury Departments Bureau of Alcohol Tobacco and Firearms, and the Postal Service reported to the General Accounting Office that 'no evidence exists to support the contention that arson related crime is a serious national problem or that greater federal effort is warranted.' The agencies make this preposterous contention despite the fact that there has been no federal effort to determine the severity of the arson problem. (Percy, 1978).

Committed to the efforts of the arson movement, Percy (1978)
legitimates his own efforts by a tautological argument that, if interpretable at all, justifies the position of the "four federal agencies". He points out that the agencies note a lack of evidence and then condemns them by noting that they make this statement in spite of a lack of evidence.

Causes of Confusion

The above data demonstrate that a certain amount of statistical difference between dollar and incident estimates is likely due to author reporting error; that is, in at least one example two individuals quoting the same source produce different data. Further confusion is caused by statements such as:

These figures, it should be stressed, take into account only those fires positively classified by local fire departments as incendiary and do not include even larger losses to fires of 'suspicious' or 'undetermined' origins. (Brady, 1982:252).

In fact, all of the data presented in this chapter and all of the data presented by Brady (1982) include "suspicious fires". Siatt (1980) referring to the reclassification of arson by the FBI also mistakenly implies that earlier arson statistics excluded "suspicious fires" stating that "Previously only arson arrests and convictions were reported for statistical purposes; now, all fires of suspicious nature are reported.". The first half of this statement is true - the second is not, the FBI flatly refuse to include "suspicious fires" in their Uniform
Debate over what to include in the compilation of arson data has not been limited to arguments over the inclusion of suspicious fires but has extended to the possibility of including a certain percentage of unknown cause fires, and or a certain percentage of all fires (Moll, 1974:10).

Those who wish to inflate arson data by including in the totals certain percentages of other types of fires justify this practice by imputing to fire authorities a level of incompetence that may exist in some jurisdictions, but does not necessarily permeate the entire system. It is probably true that some .."Fire Chiefs may list a fire as caused by faulty wiring if they don't know what else to call it"(Krajick, 1979:6). And there may be some authorities who believe that 60% of all fires are incorrectly identified as to cause (Moll, 1974:10). But if such statements are true, speculation over what percentage of all fires are actually arson fires does little to improve an already unreliable data base. Further, if the identification of fire cause is as inaccurate as some authorities state, then it seems logical to assume that a certain percentage of fires identified as arson may also have been incorrectly labelled.

Boudreau et al. (1977) were the leaders in the push toward inclusion of suspicious and unknown cause fires in the tabulation of arson statistics. Although they were instrumental in raising both public and governmental concern over the incidence of arson, Boudreau et al. did so by using seriously
flawed statistical data. They state:

Many arson experts believe that at least half the fires labelled 'unknown cause' are actually intentionally set. Therefore, two measures will be used in this report: incendiary and suspicious fires, and (2) incendiary and suspicious fires plus one-half of the fires of unknown cause. (Boudreau et al., 1977:4).

The influence of the Boudreau et al. report is evident in numerous arson publications. For example, Rider (1980) presents a list of data from the National Fire Protection Association and then notes:

The NFPA made no adjustments for unreported fires or losses. If half of the unknown-cause fires were to be included in the 1978 estimates the incidence of arson for that year could easily exceed $1.5 billion and possibly approach $2 billion. (Rider, 1980:7).

Then, quoting figures from the Boudreau report, Rider states that:

...for each one hundred reported incendiary or suspicious fires, there are approximately two individuals convicted. When the definition of arson is expanded to include one-half of the fires of 'unknown cause' the conviction rate drops to 0.75. (Rider, 1980:9).

The manner in which Rider presents the data leads one to believe that he is discussing United States national data. Close analysis of the source of the data reveals it is not national data. Before listing the data in question, the creators, Boudreau et al., state:

Since national data on neither the fraction of arrestees who were charged, nor the processing of juveniles are available, it is not possible to calculate the U.S. arson conviction rate (ratio of convictions to offences). However some indication of its value can be obtained by combining U.S. arrest data with conviction and sentencing data from a representative state." (Boudreau et al., 1977:30).
Using California disposition data Boudreau et al. report that for their study there were 9 persons arrested and 2 convicted for every one hundred arson offences reported\(^9\). Although Boudreau et al. clearly point out the limitations of their data, the figures they arrive at are quoted on numerous occasions by authors who fail to acknowledge these limitations. The following examples demonstrate how the data tabulated by Boudreau et al. have been quoted out of context.

A 1979 issue of FIRE COMMAND quoting figures of nine arrested and two convicted for every one hundred reported arson offences, states that "Ohio's current conviction rate (15 to 17\%) is far above the national average" (Fire Command, Feb. 1979). The authors then conclude that their higher success rate in convicting arsonists was partially due to their new arson lab.

Braun and Ford (1981) also point to the "national clearance rate" of 9\% and discuss how their jurisdiction's newly formed Arson Task Force has been instrumental in producing their 19\% clearance rate.

The news media also presented the Boudreau et al. statistics as national figures. The "9 and 2 per 100" figures have appeared in innumerable newspaper and magazine articles and also were discussed as U.S. National figures during the televised Nova Special on October 4, 1981 entitled Why America

Coincidently, the 9\% arrest rate compiled in this fashion is identical to the arrest rate discussed earlier which had been computed by dividing an FBI arrest figure by a NFPA arson incident figure.
In 1979 the *Fire and Arson Investigator* reprinted a "fact sheet" from an Illinois source which among other things, stated that "there were 502,000 incidents of arson in '74" and "there were 511,700 incidents of arson in '75". Both figures also appear in the Boudreau report and in fact are the total number of all reported incendiary and suspicious fires PLUS one-half of all fires of unknown cause. The "fact sheet" ends with, "The total cost of arson to society in 1974 was $5.4 billion." This $5.4 billion figure originated from the Boudreau et al. (1977) report. They state:

The report of the National Commission on Fire Prevention and Control estimated a total cost to society of about 4.2 times the direct property losses from fires when such considerations as fire department operations, burn injury treatment, insurance company operating expenses, and productivity losses are included. This would bring the total cost of arson to society in 1974 to $5.4 billion. (Boudreau et al., 1977:14) (emphasis added).

Dividing the Boudreau et al. $5.4 billion figure by 4.2 reveals that they did not use their own "direct property loss" figure of $616 million (Boudreau et al., 1977:14) but instead multiplied $1.2 billion by 4.2. The resulting $5.4 billion figure includes all known arsons, all suspected arsons, and one-half of all fires of unknown cause.

When comparing other crimes to the crime of arson few authors mention the fact that all crimes are subject to an element of under-reporting. Boudreau et al. do eventually refer to this fact but only when it may be used to further their cause. There are three criteria which must be met before the FBI
will consider including a crime in the Part One UCR classification. These are:

1. the seriousness of the offence;
2. a high frequency of occurrence and;
3. a strong likelihood of being reported to the police.

Numbers one and two are not considered a problem by Boudreau et al., and neither is discussed in this section of their report. With respect to number three, Boudreau et al. begin by quoting from an American victimization survey\(^{10}\) which noted that only 42% of the incidents of crime were ever reported (Boudreau et al., 1977:76). If it could be demonstrated that 42% of all arsons are discovered or reported then the third criteria (strong liklihood of being reported to the police) will have been met. They conclude:

...if we assume that the actual number of arsons is equal to the number of fires classified as incendiary or suspicious plus one-half the fires of unknown cause then the total arson reporting rate was 37% in 1974 and was 59% for building arson... Even if all fires of unknown cause were actually incendiary the reporting rate would have been 23% for total arson and 42% for building arson. (Boudreau et al., 1977:76).

Through the use of rather innovative, imaginative, yet not necessarily deceitful practices, American officials were able to convince the public, press and Federal Government that arson in the U.S. was a national epidemic. The number of annual incidents and the associated dollar loss were "proven" to be ever increasing, while arrests and convictions were low.

\(^{10}\) "Criminal Victimization Surveys in 13 American Cities", U.S. Department of Justice, LEAA, June 1975.
"...a dramatic decline in arson."

Given the perceived arson crime wave, arson administrators began to explore various arson prevention programs. The State of Washington, and more specifically the City of Seattle, has been considered a pioneer in the implementation and "testing" of various re-active and pro-active arson strategies (Teague, 1979; Webster and Mathew, 1979; Kroll, 1978). Gordon Vickers, head of the United States Fire Administration (USFA) a branch of the U.S. Government, Department of Commerce, stressed at the beginning of his tenure that he would "induce other cities to emulate his hometown." (Knickerbocker, 1979). Vickers was once a Seattle fire chief.

Many of Seattle's arson control strategies were based upon the recommendations of a report issued by the Institute for Puget Sound Needs entitled An Analysis of Arson in a Socio-Economic Framework, 1965-1975 (Nov. 1976). The study was updated in 1980 by Thomas Brace, the Director of the Washington State Fire Marshalls' Office. One of the more interesting items in the Brace report is a denunciation of the Consumer Price Index (CPI) as a tool used in the comparison of yearly arson losses:

While it is a gross index of inflation measuring price changes of haircuts, hamburger, and almost everything in between it does not have a component to measure changes

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*Known as the National Commission on Fire Prevention and Control prior to 1976.*
in construction costs. (Brace, 1980:39).

As a result Brace decided to use the Comparative Cost Multiplier (CCM), an index used by American insurance companies which takes into account changes in both labour and material costs. Brace used the CPI to calculate the dollar loss of contents and then added this to the structural loss which he had calculated by using the CCM.

TABLE I

Seattle's Arson Dollar Loss

<table>
<thead>
<tr>
<th>Year</th>
<th>Nominal Loss (Unadjusted)</th>
<th>Actual Loss (Adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967</td>
<td>517,992</td>
<td>517,992</td>
</tr>
<tr>
<td>1968</td>
<td>1,500,779</td>
<td>1,445,358</td>
</tr>
<tr>
<td>1969</td>
<td>3,015,733</td>
<td>2,789,117</td>
</tr>
<tr>
<td>1970</td>
<td>1,443,746</td>
<td>1,256,673</td>
</tr>
<tr>
<td>1971</td>
<td>621,203</td>
<td>501,672</td>
</tr>
<tr>
<td>1972</td>
<td>1,253,056</td>
<td>954,966</td>
</tr>
<tr>
<td>1973</td>
<td>2,208,884</td>
<td>1,587,825</td>
</tr>
<tr>
<td>1974</td>
<td>3,259,113</td>
<td>2,143,673</td>
</tr>
<tr>
<td>1975</td>
<td>2,689,231</td>
<td>1,606,846</td>
</tr>
<tr>
<td>1976</td>
<td>1,962,335</td>
<td>1,090,612</td>
</tr>
<tr>
<td>1977</td>
<td>1,717,156</td>
<td>886,920</td>
</tr>
<tr>
<td>1978</td>
<td>1,924,448</td>
<td>919,183</td>
</tr>
</tbody>
</table>

Compiling Seattle's arson dollar loss statistics in this fashion produced some interesting results, as TABLE I indicates. When the nominal (unadjusted) loss figures were compared it appeared that 1974 was the peak year in a specified period. The actual (adjusted) dollar losses, however, showed that 1969 was the peak year for the same specified period. By 1978, the nominal (unadjusted) fire loss was twice as high as the actual dollar loss:

In other words half the nominal loss reflects the actual physical loss and the other half is explained by inflation. (Brace, 1980:41).

Regardless of nominal or actual values the figures in TABLE I clearly show two distinct phases with 1969 and 1974 as peak years. In a report published one year later by the Washington State Fire Marshall's Office, of which Brace was the director, the fact that there were two peak years for arson incidents in Seattle was ignored (WA-FIRS, 1980). On page five of that report the following narrative is found:

A look at Seattle's arson experience in the 1970's clearly underscores the findings of the U.S. Senate Subcommittee. The following chart indicates that Seattle experienced a five fold increase in the dollar loss attributed to arson fire between 1971 and 1974. In contrast the chart shows a dramatic decline in arson losses following the formation of an arson task force in Seattle. (WA-FIRS, 1980:5).

The chart referred to has been reproduced in its entirety in TABLE II.

The manner in which the data are presented leads one to believe that the creation of the Arson Task Force was causal in reducing the dollar loss from arson fires. However, the Arson
Task Force was not created until June of 1975 and none of its recommendations were acted upon until 1976. These facts are discussed by Brace in his 1980 article. The article, dated January 1980, preceded the WA-FIRS 1980 annual report by at least a full year.

TABLE II

Seattle's Yearly Arson Loss as Presented by the Washington State Fire Marshal's Office

<table>
<thead>
<tr>
<th>Year</th>
<th>Loss Attributed to Arson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>621,00</td>
</tr>
<tr>
<td>1972</td>
<td>1,200,00</td>
</tr>
<tr>
<td>1973</td>
<td>2,200,00</td>
</tr>
<tr>
<td>1974</td>
<td>3,200,00</td>
</tr>
</tbody>
</table>

Formation of the Arson Task Force - 1975

<table>
<thead>
<tr>
<th>Year</th>
<th>Loss Attributed to Arson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>2,600,00</td>
</tr>
<tr>
<td>1976</td>
<td>1,900,00</td>
</tr>
<tr>
<td>1977</td>
<td>1,800,00</td>
</tr>
<tr>
<td>1978</td>
<td>1,800,00</td>
</tr>
</tbody>
</table>


While the 1980 WA-FIRS annual report stated it would look at arson losses in the 1970's it for some reason starts at 1971.
The dollar loss for 1971 (see TABLE I of this thesis) was less than half the dollar loss for 1970, a reduction that occurred without an arson task force. Figures such as these would not be beneficial in proving the effectiveness of the task force formulated in mid 1975. Others who discuss the success of Seattle, such as Revelle (1978), French (1979), or Webster and Mathew (1979) ignore the problems raised in this section and begin their discussions by quoting the figures from 1971 on.

An equally plausible reason for the "dramatic decline in arson" experienced by Seattle was the decision to investigate, with arson in mind, only those fires which suffered damage in excess of $1000.00. It has been noted that Seattle's arson problem was primarily vandalism related, not profit motivated, (Krajick, 1979:16) and it has also been stated that arsons in Seattle have declined from a "peak of 662 incidents destroying $3.2 million worth of property in 1974, to 448 incidents and $1.8 million in property damage [in 1978]." (Krajick, 1979:16). By selecting a thousand dollar limit the Seattle arson unit was forced to ignore a type of arson which may have accounted for a substantial number of incidents.

Further, it may be argued that the decline in the dollar loss due to arson in certain areas of North America was as likely the effect of statistical regression as it was the implementation of any arson strategies. Programs designed to address a specific problem are often initiated after the problem has reached a peak. A decrease may have been about to occur as
part of the unexplained cycle associated with the crime; a cycle which Seattle's arson statistics demonstrate.

Although not referring to the presentation of statistics that led many people to believe the Seattle arson response was a model which should be duplicated, the caution offered by C. Karchmer should not go unheeded:

I'm afraid that this whole Seattle thing is being blown up to a damaging proportion. I believe that they do an excellent job of investigating and making the public aware, but the publicity over what's going on here shouldn't raise false hopes all over the country that they've found a way to solve the arson problem. (quoted in Krajick, 1980:16).

Results of the Arson Movement

On December 12th 1979, fifteen months after arson was reclassified as a Part I index crime, LEAA announced that nine million dollars was to be allocated to the fight against arson. Nine states and twenty six regional and local units were to receive portions of the funds; at least half expressed the intention of following the example provided by programs such as Seattle's (Crime Control Digest, Dec. 17, 1979). However, a quick perusal of the success of Seattle's arson task force, the arson investigation unit, and that city's prevention program, reveals that instrumentation effects and statistical regression were as likely related to any reduction in arson as any "treatment".
In April of 1979, the Province of British Columbia announced the start of an arson prevention campaign which "closely mirrors the Seattle example." (Hansard, Province of British Columbia, 1979:540).

In 1980, the Province of Manitoba also duplicated much of Seattle's arson prevention campaign. And although the Cities of Calgary and Edmonton, Alberta, have had arson investigation squads similar to Seattle's at least as long as Seattle, the Province of Alberta has also experimented with a number of the other components of Seattle's arson prevention campaign. As noted in the introductory comment of chapter I, American research into arson prevention and control may be of limited value to Canadian administrators. The material in this chapter tends to support this contention but conversely, it is suggested that many of the American programs directed at arson may be of questionable value on either side of the border due to a lack of research.

Whether American arson statistics will improve as the result of reclassification is debatable. The FBI have noted in both the 1979 and 1980 Uniform Crime Reports that the standard analyses of Part I crimes were not conducted with respect to arson due to insufficient information received. Considering that the FBI were only recently assigned this responsibility there is hope for future improvement.

Perhaps the most important question for Canada becomes, 'In light of the problems discussed in this chapter, how do Canadian
arson statistics compare?'. This question is addressed in the following chapter.
III. FIRE CRIME IN CANADA

The preceding chapter indicates that fire-crime statistics in the United States must be viewed with caution. The purpose of that chapter was not to deny the existence of an arson problem in certain areas in the U.S. but to demonstrate that much of the research resulting from the arson movement - research directed by a speculative data base - is of limited applicability to Canadian, and in many cases, American, arson investigation administrators.¹

Regardless of the validity and reliability of the actual American arson data, a number of issues that emerged during the American arson movement apply to Canada. For example, concern over public and government apathy toward arson and fire in general has been raised by Canadian officials. Switzer and Baird (1980) in a report prepared for the National Research Council of Canada, note that:

If government were interested in fire losses and their implications they would have demanded good statistics long ago. This statement reinforces the evidence of low political appeal in the fire problem in Canada. (Switzer and Baird, 1980:58).

Switzer and Baird intimate that there is a problem with arson statistics in Canada and also point to "government" as

¹It should be noted that this statement does not apply to the literature that relates to the technical aspects of arson investigation since this is an area that is not discussed in this thesis.
responsible for this situation. While it is suggested that their assessment is correct (Canadian fire-crime statistics are poor and government should demand "good statistics") numerous factors influence the definition of fire-crime and fire-crime classifications. In this chapter, the sources of Canadian fire-crime statistics and the political and legal environment that influences the definitions of fire-crimes will be examined.

Sources of Canadian Fire Crime Statistics

The control of arson and the collection of arson data are complex and confused areas in the United States. It is suggested that a similar situation exists in Canada. American sources are quick to point this out:

As meager consolation it may be stated that Canada appears to be even worse organized (sic) to deal with arson than is the United States. The problem is perceived as less severe, perhaps because Canada does not have as much of a core city slum problem and therefore not as many "convenience" fires...The Ontario Fire Marshal has been quoted as saying he does not know who is responsible for coping with arson. (Tauber, 1979:3).

To ask who is responsible for coping with arson implies that a formal or statutory authority is being requested. Since there is statutory provision for numerous agencies, public and private, to become involved in arson investigation (discussed further in chapter VIII) the question becomes, 'Who is actually involved in arson investigation?'. In the Organization of Arson Investigation (OAI) survey conducted for this thesis, those
surveyed were asked to identify the agencies that conduct different phases of arson investigation in their jurisdictions.

TABLE III
Who actually conducts each phase of an arson investigation?* (O.A.I. Survey)

<table>
<thead>
<tr>
<th>Phase of Investigation</th>
<th>Local Fire Respondents</th>
<th>Local Police Respondents</th>
<th>Insurance Agency Respondents</th>
<th>Fire Commission Respondents</th>
<th>Other Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) On Scene fire cause investigation.</td>
<td>27 (90.0)</td>
<td>12 (40.0)</td>
<td>9 (30.0)</td>
<td>19 (63.3)</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>B) Fire scene investigation once arson is suspected.</td>
<td>26 (86.7)</td>
<td>25 (83.3)</td>
<td>9 (30.0)</td>
<td>23 (76.7)</td>
<td>6 (20.0)</td>
</tr>
<tr>
<td>C) Processing of evidence at the fire scene.</td>
<td>16 (53.3)</td>
<td>29 (96.7)</td>
<td>5 (16.7)</td>
<td>19 (63.3)</td>
<td>5 (16.7)</td>
</tr>
<tr>
<td>D) Post fire scene investigation: financial history.</td>
<td>7 (23.3)</td>
<td>23 (76.7)</td>
<td>23 (76.7)</td>
<td>10 (33.3)</td>
<td>7 (23.3)</td>
</tr>
<tr>
<td>E) Post fire scene investigation: interview suspects.</td>
<td>11 (36.7)</td>
<td>30 (100)</td>
<td>12 (40.0)</td>
<td>13 (43.3)</td>
<td>5 (16.7)</td>
</tr>
</tbody>
</table>

Legend

A) On Scene fire cause investigation.
B) Fire scene investigation once arson is suspected.
C) Processing of evidence at the fire scene.
D) Post fire scene investigation: financial history.
E) Post fire scene investigation: interview suspects.

*Respondents were asked to note all that apply, a few "checked" all.

**"Other" included B.C Hydro, Coast Guard, and Department of National Defence fire investigators.

TABLE III illustrates that numerous agencies may be involved in each phase of the investigation. When asked if their agency collected and recorded statistics on fire-crimes, the
majority of respondents, 22 (73.3%) indicated yes.

Half of the respondents to the OAI survey were of the opinion that the data collected by their respective agencies were an accurate reflection of the amount of arson in their jurisdiction.

**TABLE IV**

<table>
<thead>
<tr>
<th>Fire crime statistics collected by my agency are an accurate reflection of the amount of arson in my jurisdiction. (O.A.I. Survey)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Moderately Disagree</td>
</tr>
<tr>
<td>Slightly Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Slightly Agree</td>
</tr>
<tr>
<td>Moderately Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

There are a number of ways to interpret the data in TABLE IV. One interpretation is that half of the respondents were confident in their own ability and the ability of their co-workers to identify fire causes accurately. Further, this may indicate that 50% of those who responded do not perceive
"suspicious" or "undetermined" cause classifications as undermining the accuracy of arson data collected by their agency.

A question in the OAI survey asked respondents to explain the difference between two terms commonly associated with the word arson. TABLE V and the following quotes illustrate that there may be inconsistencies in the assignment of these fire classifications.

TABLE V

<table>
<thead>
<tr>
<th>Explanation provided</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;No difference&quot;</td>
<td>2</td>
<td>6.3</td>
</tr>
<tr>
<td>No explanation offered</td>
<td>16</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Of those who offered explanations of the distinction between suspicious cause and undetermined cause fires, the answers varied. Explanations for "suspicious cause" fires were: "doubt over cause", "lack of concrete evidence to support a determined cause", "financial problems, poor business, over-stocked, family problems, etc. but cannot prove actual cause", "when absolutely no natural cause can be associated with
the area of origin", "lacking necessary evidence", "inconsistent information is revealed by witnesses and other investigative efforts", "something unusual triggers the investigators suspicion" and "a gut feeling". The following are explanations provided for the classification of "undetermined cause": "not a set fire", "known to be accidental but cause cannot be pin-pointed", "a fire is undetermined when cause is difficult to establish and there is no evidence of motive", and "when there is no idea of the cause". One person noted that both suspicious and undetermined may apply at once.

What little Canadian literature there is, does make reference to the additive effect of fires classified as "suspicious", "unknown", or "undetermined" in origin, but with the exception of news media articles, there is a reluctance to create figures rather than report them. For example Lemieux (1981:20), states that there are "an average of 5000 known arson fires per year" in Canada. From 1969 to 1978 data provided by Statistics Canada reveal that arson fires rose from 2139 to 7697 over the ten year period. The total does average roughly 5000 arsons (5049) for that period. This minimum level of arson has increased since the ten year period referred to above. In 1980,

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2Of the Canadian literature that makes reference to arson the bulk may be described as Provincial and Dominion Fire Commissioner annual reports, Provincial inquiries into fire services in general (Keenleyside, 1975; Wright, 1975), one National Research Council report on fire and fire services in general (Switzer and Baird, 1980), the British Columbia Coordinated Law Enforcement Unit (C.L.E.U.) reports, and a scant collection of articles in magazines and newspapers.
9379 arsons were recorded.

Although a "minimal level" of arson may not be an accurate reflection, it is at least a more concrete account of the scope of the arson problem in Canada. Still, there are problems with interpreting this minimal level.

In the annual reports of the Dominion Fire Commissioner a number of figures are presented under a table entitled "Arson and Attempted Arson". Three of these columns are labeled "Suspected or Known Incendiary"; "Unfounded"; and "Actual Number". The actual number of suspected or known incendiary fires is determined by subtracting the number of unfounded fires. The "actual" number figure is the same as that listed under "Arson" reported in the Canadian Uniform Crime Reports compiled by the Center for Justice Statistics division of Statistics Canada. As illustrated in TABLE VI the number of arsons in Canada from 1969 to 1973 rose each year by an average of 13%. But from 1973 to 1974 the increase is approximately 88%, and for each year thereafter the average increase reverts back to roughly 5.2% per year. However, if reference is then made to the data included in the DFC reports under the heading "Incendiary" the figures rise from 4964 in 1975 to 8441 in 1976, an increase of 3477 or 70%. Statistics Canada reports that there were 7282 "Actual Arsons" in 1975 and the same number again in 1976.
### TABLE VI

Fire Crime in Canada: Yearly Increases and Dollar Loss

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ACTUAL ARSONS</th>
<th>PERCENT INCREASE</th>
<th>INCEND -IARY INCREASE</th>
<th>DOLLAR DAMAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>2139</td>
<td></td>
<td>2122</td>
<td>$12,660,912</td>
</tr>
<tr>
<td>1970</td>
<td>2539</td>
<td>(18.7%)</td>
<td>2211 (04.2%)</td>
<td>14,852,462</td>
</tr>
<tr>
<td>1971</td>
<td>2753</td>
<td>(08.4%)</td>
<td>2915 (31.8%)</td>
<td>19,407,732</td>
</tr>
<tr>
<td>1972</td>
<td>3086</td>
<td>(12.0%)</td>
<td>3369 (15.6%)</td>
<td>23,762,883</td>
</tr>
<tr>
<td>1973</td>
<td>3514</td>
<td>(13.8%)</td>
<td>4302 (27.7%)</td>
<td>37,471,069</td>
</tr>
<tr>
<td>1974</td>
<td>6636</td>
<td>(88.8%)</td>
<td>5648 (31.3%)</td>
<td>46,812,897</td>
</tr>
<tr>
<td>1975</td>
<td>7282</td>
<td>(09.7%)</td>
<td>4964 (-12.1%)</td>
<td>58,506,755</td>
</tr>
<tr>
<td>1976</td>
<td>7282*</td>
<td>(00.0%)</td>
<td>8441 (70.0%)</td>
<td>77,651,817</td>
</tr>
<tr>
<td>1977</td>
<td>7569</td>
<td>(03.9%)</td>
<td>8957 (06.1%)</td>
<td>99,383,312</td>
</tr>
<tr>
<td>1978</td>
<td>7696</td>
<td>(01.6%)</td>
<td>9100 (01.6%)</td>
<td>113,347,020</td>
</tr>
<tr>
<td>1979</td>
<td>8535</td>
<td>(10.9%)</td>
<td>9311 (02.3%)</td>
<td>113,458,736</td>
</tr>
<tr>
<td>1980</td>
<td>9379</td>
<td>(09.9%)</td>
<td>11677 (25.4%)</td>
<td>180,122,057</td>
</tr>
</tbody>
</table>

Source: Dominion Fire Commissioner
Department of Public Works
Annual Reports 1969 to 1980

For persons attempting to study and identify arson trends, these differences are confusing. Neither Statistics Canada nor the Annual Report of the Dominion Fire Commissioner (known as the Dominion Fire Marshal in 1974) offer any explanation. A review of fire-crime reporting procedure offers some insight.

Fire Crime Reporting Procedures

In Canada, arson is probably the only crime for which the reporting of statistics was once the responsibility of an agency external to the police service. The Canadian Uniform Crime Reporting System was implemented on January 1, 1962. In November of that year it was determined that effective January 1 1963, data on arson and attempted arson would be collected as a separate offence, responsibility being assigned to the provincial and territorial fire marshalls (Crime Statistics, Canada 1971:7). Compilation of fire and arson statistics remained the responsibility of fire services until 1974. Effective January 1st 1974 the responsibility for compiling arson statistics was transferred to police services. Under the guidance of Statistics Canada, police agencies are to list fires in the arson category only when such fires are subject to the

\[\text{Section 389(1) refers to wilfully setting fire to a number of items.}\]

\[\text{Section 389(2) refers to personal property not mentioned in 389(1) that is willfully and fraudulently set fire to.}\]
provisions of sections 389(1)\(^3\), 389(2)\(^4\), 390\(^5\), and 392\(^6\) of the Criminal Code of Canada (R.S.C. 1970 c.34). If other charges are appropriate, such as damage to property, then the fire-crime is "scored" under sections relating to damage to property as defined by s. 387 of the Criminal Code.

Although no dollar loss associated with the number of "actual suspected or known incendiary" fires as listed by the Dominion Fire Commissioner or the number of "Arsons" listed by Statistics Canada is provided, the Dominion Fire Commission includes a table entitled "Causes of Fires" in which the dollar loss associated with each cause is listed. One of the causes of fire is "Incendiarism". These figures and the corresponding dollar loss are presented in the second half of TABLE VI (page 44). The only reference to "Incendiarism" in either Statistics Canada or Dominion Fire Commissioner reports is found in the 1978 Dominion Fire Commissioner annual report of Fire Losses in Canada. Incendiarism is defined as "deliberately set fires" while arson is defined as "deliberately set fires for fraudulent or malicious purposes" (DFC, 1978:6). Since Statistics Canada only collects data on fire-crimes which conform to the essential elements outlined in sections 389 to 392 of the Code, and

\(^5\) Section 390(a) makes it an offence to set fire to anything likely to cause the items mentioned in 389(1) to catch fire, while 390(b) makes it an offence to set fire to anything likely to cause personal property not mentioned in 389(1) to catch fire.

\(^6\) Section 392 outlines the essential elements of setting a fire by negligence.
presents these figures to the DFC, the DFC figures listed under "Incendiary" should always be greater; the DFC adds to the "arson" figure all fire crimes that do not meet Statistics Canada's guidelines. That is, incendiarism subsumes arson and therefore should always be equal or greater than the number of recorded arson fires. This appears to cause a few problems, as TABLE VII illustrates.

If arson is a subset of incendiarism all of the figures in the third and fourth columns of TABLE VII (difference and percent difference) should be positive. It is suspected that the negative figures in TABLE VII are the result of the distinction between arson and incendiarism not being clarified until 1978. The transference of reporting responsibility from fire to police services also may assist in explaining the confusing differences.
TABLE VII

Fire Crime in Canada:
Differences Between Incendiary and Arson Fires

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INCENDIARY FIRES</th>
<th>ARSON FIRES</th>
<th>DIFFERENCE</th>
<th>PERCENT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>2122</td>
<td>2139</td>
<td>-17</td>
<td>-0.01%</td>
</tr>
<tr>
<td>1970</td>
<td>2211</td>
<td>2539</td>
<td>-328</td>
<td>-12.90%</td>
</tr>
<tr>
<td>1971</td>
<td>2915</td>
<td>2753</td>
<td>162</td>
<td>5.80%</td>
</tr>
<tr>
<td>1972</td>
<td>3369</td>
<td>3086</td>
<td>283</td>
<td>9.10%</td>
</tr>
<tr>
<td>1973</td>
<td>4302</td>
<td>3514</td>
<td>788</td>
<td>22.40%</td>
</tr>
<tr>
<td>1974</td>
<td>5648</td>
<td>6636</td>
<td>-988</td>
<td>-14.80%</td>
</tr>
<tr>
<td>1975</td>
<td>4964</td>
<td>7282</td>
<td>-2318</td>
<td>-31.80%</td>
</tr>
<tr>
<td>1976</td>
<td>8441</td>
<td>7282</td>
<td>1159</td>
<td>15.90%</td>
</tr>
<tr>
<td>1977</td>
<td>8957</td>
<td>7569</td>
<td>1361</td>
<td>17.90%</td>
</tr>
<tr>
<td>1978</td>
<td>9100</td>
<td>7696</td>
<td>1404</td>
<td>18.20%</td>
</tr>
<tr>
<td>1979</td>
<td>9311</td>
<td>8535</td>
<td>776</td>
<td>9.09%</td>
</tr>
<tr>
<td>1980</td>
<td>11677</td>
<td>9379</td>
<td>2298</td>
<td>24.5%</td>
</tr>
</tbody>
</table>

The respondents to the OAI survey were relatively consistent in their answers to a question asking if policy dictated the assignment of a fire to one of four classifications. For each classification roughly 60% stated there was policy while 40% stated there was not. The differences may reflect reality - that is, policy does exist in some areas but some may be unaware that it exists - or some may believe policy exists when it does not.

**TABLE VIII**

Is there written policy in your jurisdiction defining when a fire is to be classified in your reports as:

(O.A.I. Survey)

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arson</td>
<td>Yes</td>
<td>17</td>
<td>56.7</td>
<td></td>
<td>18</td>
<td>60.0</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
<td>43.3</td>
<td></td>
<td>12</td>
<td>40.0</td>
<td>12</td>
<td>40.0</td>
</tr>
<tr>
<td>Incendiary</td>
<td>Yes</td>
<td>18</td>
<td>60.0</td>
<td></td>
<td>18</td>
<td>60.0</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td>Suspicious</td>
<td>Yes</td>
<td>18</td>
<td>60.0</td>
<td></td>
<td>18</td>
<td>60.0</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td>Undetermined</td>
<td>Yes</td>
<td>17</td>
<td>56.7</td>
<td></td>
<td>17</td>
<td>56.7</td>
<td>17</td>
<td>56.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
<td>43.3</td>
<td></td>
<td>13</td>
<td>43.3</td>
<td>13</td>
<td>43.3</td>
</tr>
</tbody>
</table>

Total 30 100.0 30 100.0 30 100.0 30 100.0

Once the distinction between incendiary and arson fires is recognized, it may be suggested that those who review Statistics Canada reports, the same data presented by the DFC, or the additional information provided by the DFC, will then be able to grasp the nature and scope of the arson problem in Canada. Two factors bring this assumption into question. First, data relating to "Incendiary Fire" presented by the Dominion Fire
Commissioner is collected from the Provincial Fire Commissioners (PFC) and there appears to be considerable variation in reporting procedures. Second, data on arson collected from police agencies by Statistics Canada and subject to the guidelines they provide (sec. 389 to 392 C.C.C.) are dependent on legal interpretations of those sections. Canadian case law dictates the classification of "arson and other fires" as defined by Statistics Canada.

The Effect of Case Law on Fire Crime Classification

The common law definition of arson was restricted to the malicious burning of the house of another person. (Black, 1979: 102). The Criminal Code of Canada, enacted in 1892, provided a more explicit definition:

S.482 Every one is guilty of the indictable offence of arson and liable to imprisonment for life who wilfully sets fire to any building or structure whether such building, erection or structure is completed or not, or to any stack of vegetable produce or of mineral or vegetable fuel, or to any mine or well of oil or other combustible substance, or to any ship or vessel, whether completed or not, or to any timbers or materials placed in any shipyard for building or repairing or fitting out any ship or to any of her majesty's stores or munitions of war.

The sections immediately following this offence, involved wilfully setting fire to items not mentioned in S.482 and in these sections (483-484) the word arson is not used.

Sections 482 and 484 of the 1892 Criminal Code became ss.511(1) and 513 respectively when the Code was revised in 1906
and were unaltered by the 1927 revision. The current Code combines the old sections 511(1) and 513 to form sub-sections 389 (1) and (2) and while the word "arson" was removed from these provisions it appears in the heading "Arson and Other Fires". In brief, the offences listed under "Arson and Other Fires" are: sub-section 389(1), wilfully setting fire to real property; sub-section 389(2), wilfully setting fire to personal property with fraudulent purpose; sub-section 390(a), wilfully setting fire to anything causing real property outlined in ss.389(1) to catch fire; sub-section 390(b), wilfully and for a fraudulent purpose setting fire to anything that causes personal property outlined in ss.389(2) to catch fire; Section 391, presumption against the holder of insurance and; Section 392, setting fire by negligence.

Although it appears in the heading "Arson and Other Fires" the word arson per se is not defined in the Code. The word arson, also appears in sections 17 and 213 of the Code. A person is guilty of culpable homicide, subject to the provisions of Section 213 when he causes the death of a human being while committing a number of criminal offences, one of which is "389 or 390 (arson)". Under section 17, "Compulsion by Threats", arson is listed as an offence not excusable when committed under ---------------

7See sub-section 386(1).
9Section 2 and 385 Criminal Code of Canada.
10See Section 386(3).
threat.

As a definition of arson is no longer included in the Code legal issues in case law relating to "Arson and Other Fires" have centered around "sets fire to"\textsuperscript{11}; defining building or structures\textsuperscript{12}; and the "intent to defraud"\textsuperscript{13}.

In \textit{R. v. Jorgensen} (1954), the term "sets fire to" was defined as:

...burn in the sense that word is used in the common law definition of arson. There must be actual combustion, although it is not necessary for the material to blaze openly, so long as it comes to a red heat. Charring, that is the carbonization of the material by combustion, is evidence of burning, but blackening of the material not accompanied by any degree of consumption is not, nor is mere scorching...

In arriving at this definition the Court relied on \textit{Regina v. Parker}\textsuperscript{14}, \textit{Regina v. Russell}\textsuperscript{15} and \textit{Russell on Crime}\textsuperscript{16}. In his dissenting opinion O'Halloran, J.A., questioned the use of such antiquated sources given the present day realities of construction materials and fire suppression services. Providing examples, O'Halloran, J.A., discussed the possibility of houses suffering severe fire damage without the structure actually

\begin{flushleft}


\textsuperscript{14} \textit{Regina v. Parker} (1839), 173 E.R. 733.

\textsuperscript{15} \textit{Regina v. Russell} (1842), 174 E.R. 626.

\end{flushleft}
being consumed. In the case under judgement, Jorgenson was accused of "setting fire to" a cement vault. The cupboards and contents of the vault were destroyed but the walls of the actual structure only showed signs of scorching and blistering. Damage to machinery equipment and contents was estimated at $11,000.

Uncompleted structures referred to in section 389 must have the character of an entire and connected structure, sufficiently advanced for the cohabitation of man\(^\text{17}\) but a wheeled bunkhouse constructed with the purpose of movement in mind does not exemplify the permanence of foundation suggested by "building or structure"\(^\text{18}\). A mobile home with its wheels removed, and placed on a foundation, however, was held to be a building or structure within the meaning of paragraph 389(1) (a) of the Code\(^\text{19}\).

Sub-sections 389(2) and 390(2) stipulate that the intent to defraud constitutes an essential element of the offences outlined, and must be understood in terms of the effects of sub-section 386(3) and s. 391. Sub-section 386(3) refers to "partial" and "total" interest. Persons with a "total" interest (that is they own the property outright) may burn the property as long as no insurance claim is made. When an offence is committed under ss. 389 or 390, the Code further stipulates in s.391 that if the prosecution produces evidence that the accused is the holder or beneficiary of a fire insurance policy covering

\(^{17}\) *R. v. Manning* (1871), 12 Cox C. C. 106.


\(^{19}\) *Regina v. Bedard*, (1977), 31 C.C.C. (2d) 559 (Ont. C.A.).
the property in question a prima facie but "rebuttable" presumption of an intent to defraud is established.\textsuperscript{20}

The Criminal Code provisions outlined above have caused a few problems for those charged with the investigation and prosecution of fire-crimes. These problems are outlined by Lemieux (1982) and are of assistance in illustrating the difficulties of interpreting fire-crimes listed under "Arson" by Statistics Canada.

Sub-section 389(1) is restricted to certain types of property. Absent from this list are various types of motor vehicles. Sub-section 389(2) would include motor vehicles if the element of intent to defraud is present. Persons deliberately setting fire to their own vehicles, however, would likely not be convicted if they were caught before he/she was able to make an insurance claim. A person who sets fire to the vehicle of another cannot be charged under ss. 389(1) or 389(2) unless there is an element of fraud. When fraud cannot be proven, vehicles suffering damage from set fires are considered acts of mischief. When offenders are caught, the "damage to property" provisions of s. 387 of the Code are applied (Lemieux, 1982). A similar situation exists when busses, trailers, railway cars etc. are set on fire.

Referring to section 392 (1) Lemieux (1982) notes that prosecutors apparently:

...insist on reading Section 392 (1) (a) and (b) conjunctively. It is my personal opinion that the word "OR" between (a) and (b) makes it disjunctive (Lemieux, 1982).

Hence, he argues, section 392 (1)(a) could and should be used in vehicle arsons not involving fraud. Recent case law has established that the two sub-sections are indeed separate offenses, however, if the judgement delivered in R. v. Alter is followed by other courts arson investigators will still have to rely on section 387 of the Code as the charging section for vehicle fires not involving fraud. In that decision, Borins, Co. CT. J., notes at page 386:

In enacting s-s. (1)(a) and (b), Parliament, as I have said, intended to create two different offences. One contains the element of wilfulness and the other does not. An offence is committed under s. 392(1)(b) where a person causes a fire by violating any law in the place where the fire occurs and the fire results in loss of life or destruction of or damage to property. An offence is committed under s. 392(1)(a) where a person wilfully causes a fire which produces a similar result in circumstances where a person is in violation of applicable, local fire-prevention or fire-safety legislation and the loss of life and destruction of or damage to the property would not have occurred. The mischief to which s.392(1)(a) and s. 392(2) is directed is compliance with fire-prevention and fire-safety legislation. (emphasis has been added).

Lemieux (1982) also refers to the difficulty in convicting for an arson offence due to the necessity of indicating "exclusive opportunity". In R. v. MacFarlane the accuseds' conviction was quashed and a new trial ordered "in the absence of a clear direction as to the necessity for proof of exclusive


opportunity to warrant conviction" 23.

In Search of Incendiarism

The Dominion Fire Commission, Department of Public Works Ottawa, collects and collates fire statistics from the Provincial Fire Commissioners. Fire crime statistics, or more specifically fire-crime statistics relating to incidents where sections 389(1),(2), 390 and 392 24 of the Criminal Code of Canada apply, are presented to the DFC by Statistics Canada who in turn receive their data from policing agencies across Canada. In each annual report the office of the DFC includes a table outlining the date, location, type of structure, cause, and dollar value of each fire in Canada that exceeded $250,000 in damage. A review of the DFC annual reports for 1977 to 1979 reveals that a number of fire cause descriptions are used by the Provincial Fire Commissioner's that relate to, or may (unknown/undetermined) relate to fire-crimes. While it has been demonstrated that efforts to determine the scope of the arson problem in Canada suffer from variations in recording procedures and from definitional variation, attempts to grasp the nature of the arson problem are even more problematic.

23 I bid at page 459.

24 In a footnote Statistics Canada indicate that their crime category "arson" includes fire attributed to pyromania and to hide another crime (Statistics Canada, 1980:46).
The numerous provincial fire-crime classifications presented in TABLE IX reveal the limitations of the data on arson as defined and presented by Statistics Canada.

**TABLE IX**

A Sample of Provincial Fire Crime Classifications

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ALTA</th>
<th>BC</th>
<th>MAN</th>
<th>NB</th>
<th>Nfld</th>
<th>NWT</th>
<th>NS</th>
<th>ONT</th>
<th>SASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arson</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arson or Other Fires</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Offence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incendiary</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influence of Drugs</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juvenile Fire Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mischief-Vandalism</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undetermined</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Source: Annual Reports, 1977 to 1979
Dominion Fire Commissioner,
Department of Public Works

As well as a problem determining what the figures in Statistics Canada represent there is a problem with respect to when the figures apply. The reports of the Saskatchewan and Nova Scotia Provincial Fire Commissioners illustrate both problems.
Data presented by Saskatchewan and Nova Scotia are for fiscal years ending March 31st. Statistics Canada indicates there were 248 arson fires in Saskatchewan in 1979 and 243 in 1980. The Saskatchewan fire commissioner reports that for fiscal year 1979/1980:

The number of fire investigations by the fire safety unit and police departments during 1979-80 totalled 75. The investigations included cases in which arson was suspected.

For 1980/1981 the Saskatchewan fire commissioner reports there were 94 such fires reported. There are numerous possible explanations for the differences in figures, such as the duplicitous inclusion of data from different years or lack of feedback during the information flow between the police to Statistics Canada to the Dominion Fire Commissioner to Provincial Fire Commisioners. For whatever reason, it appears that one level of government may have inadequate data while another level of government may have inflated data.

A better example of definitional variation results from a review of Nova Scotia's fire-crime statistics. Statistics Canada report there were 467 arsons in Nova Scotia in 1979 and 447 in 1980. The annual report of the Fire Marshal, Department of Labour, Nova Scotia notes that there were "a total of 345 fires attributed to arson and incendiary" fires (Nova Scotia, 1980/81:12) and reveal in the same report that 5 were classified as arson and 340 as suspected incendiary (total 345). For the previous fiscal year there were 11 arsons and 239 suspected incendiary fires (total 250).
As a further illustration of the confusion that exists between federal, provincial and municipal agencies, consider the Province of Manitoba. In 1980 the Investigation Section of the Manitoba Fire Commissioners Office investigated 745 fires. Of these 359 were classified as accidental, 160 as incendiary, 44 as vandalism, 150 undetermined-accidental and 32 undetermined-suspicious. The word arson is not used. Statistics Canada notes that there were 292 "arson" fires in Manitoba in 1980. Which of the Manitoba data just listed is included in the Canadian statistics for "Arson"? Is it all listed under "Incendiary Fires" in the DFC reports?

At the municipal level in Manitoba the fire chief for the City of Winnipeg has been quoted as saying that in 1981 there were 250 vandalism fires in Winnipeg accounting for 22% of all fires while arson only accounted for 1% of all fires (Wpg. Free Press January 12, 1982). The entire province suffered 44 "vandalism fires" in 1980 while the next year the City of Winnipeg (roughly half the population of the province) had 250 "vandalism fires". Further, a spokesman for the City of Winnipeg police service stated that in 1981 there were 141 "arson fires" (Calgary Herald, August 17, 1982). For whatever reason it appears that there is considerable variation in the manner in which fire-crime statistics are classified and recorded.
Defining Fire Crime Types

The lack of a consistent definition of arson and the interchangeable use of words and phrases such as incendiary fire, suspicious fire, unknown cause fire and arson fire impedes the collection of more accurate and meaningful data (Abt Associates, 1980). Statistics between provinces and within provinces will always vary due to human error but it is possible to improve the validity and reliability of arson statistics by establishing consistent definitions. Although it is suggested that the sub-categories of the main headings "arson" and "incendiary" are more important than the actual overall totals (in terms of preventive efforts) it is necessary to first establish the meaning of the main headings.

A brief legal description of the essential elements of the offences outlined in the Code under "Arson and other Fires" has been presented. Dictionary definitions of the words arson and incendiary are derived from the legal definitions at common law and hence, tend to support the legal drafting of those sections (S. 389 to 392). That is, the dictionary definitions tend to support the decision of legal draftsmen to exclude motor vehicles from the "Arson and other Fires" section unless an element of fraud is present. For example, the Oxford English Dictionary (revised 1961) defines the noun "arson" as:

The act of wilfully and maliciously setting fire to another man's house, ship, forest, or similar property; or to one's own, when insured, with intent to defraud the insurers.
The noun "incendiarism" is defined as "The practice or commission of arson". When used as an adjective the word "incendiary" is defined as:

Consisting in, relating or pertaining to, the malicious setting on fire of buildings or other property.

and when used as a subject the word "incendiary" means:

A person who maliciously sets fire to a building or other property; one who wilfully or criminally causes a conflagration; one who commits arson.

Similar definitions are found in Black's Law Dictionary (1979).

Arson at common law is defined as "the malicious burning of the house of another" and incendiary is defined as:

A house burner, one guilty of arson; one who maliciously and wilfully sets another persons building on fire. (Black, 1979).

Thus, although the common law definitions, legal interpretations, and dictionary definitions tend to support the decision of Statistics Canada to exclude a large number of vehicle fire-crimes from the heading of arson such "guidelines" were developed centuries before motorized vehicles became an important part of society. All fire-crimes, that is fires which occur as the result of activity defined by the Criminal Code of Canada as criminal, must be considered by arson administrators. Arson administrators must be able to address the question, 'Do we have a fire-crime problem?' and then, 'What type of problem do we have?'. Knowledge of the type of arson prevalent in a given jurisdiction is crucial for the

25 For a detailed description of arson as defined by common law see Tremeers Supplement to the Criminal Code.
implementation of appropriate investigative or preventive strategies. If fire-crime are allowed to be classified as mischief-vandalism the potential to "lose" valuable data is increased.

As Goldstein (1977) points out, police prevention and control methods are not necessarily equally applicable to all forms of criminal activity:

In actuality each form of criminal conduct occurs in a different setting, is likely to involve different types of individuals (both offenders and victims), and poses a challenge to the police that differs significantly from the problems presented by other forms of criminal conduct. (Goldstein, 1977:59).

Different "traditional" categories of crime (arson is not included in the examples Goldstein provides) call for different responses, but more importantly there are "equally significant subcategories" (Ibid) within each crime type. Arson administrators may know or believe that they have an arson problem in their jurisdiction but before proactive or reactive strategies may be implemented it is necessary to know what type of arson is prevalent.

The Abt Associate report presents an interesting taxonomy of arson types. They list eleven different motives and then suggest the most likely perpetrators, the typical targets, possible response strategies, and the agencies who should be responsible for the implementation of such response strategies (Abt Associates, 1980:7-9). The value of this taxonomy is in its suggested approach to each different type of arson motive. The major arson types, condensed by Abt Associates (1980:9) are:
pyromania; vandalism; revenge; arson-for-profit; and crime concealment. Attempts to discover the frequency of each motive type tend to have been conducted within a psychology framework\textsuperscript{26}. All such studies are based on small sample sizes of a particular subset of arsonist - those who have been caught.

Until the late 1970's, the bulk of the scholarly literature on arson centered around the psychology of the fire-setter. This area has not been selected as an area of in-depth study by this author. The main reason is: "an examination of the approximately 100 studies initially identified as most pertinent has brought very little new to the fore "(Tauber, 1978:58). The studies which have been conducted lack continuity, direction and replication:

The generally amorphous situation referred to makes any major attack upon "the psychology of fire-setting", broadly stated, not sufficiently likely of success to warrant undertaking research with such an aim at this time. It is first necessary to know what questions to ask. (Tauber, 1978:59).

With exception, few psychology studies have provided authorities with empirical information capable of being utilized in any

\textsuperscript{26}In a 1951 survey, Lewis and Yarnelle (1951:86) discovered that 60\% of the arsons they studied were the result of pyromania. Other estimates of the percentage of arsons caused by pyromaniacs range from 6 to 25 \% (Abt Associates, 1980:9).

Arson as Vandalism, it appears, is more common among juveniles. In a 1974 study for example, it was estimated that 60\% of all arson arrestees were juveniles and that 80\% of the arsons they committed were for vandalism (Boudreau et al. 1977:xiv). Arson as vandalism has also been estimated as the motive in 35 to 50\% of all identified arson fires (Abt Associates, 1980:9). Data indicates that revenge is a factor in between 18 to 30\% of all arsons while crime concealment may account for approximately 7 to 10\% (Abt Associates, 1980:9).
pro-active or re-active arson prevention programs. One possible exception briefly discussed by Tauber (1978) is an unpublished study conducted in New York which "seems to have established a number of characteristics of fire-setters the knowledge of which is useful during investigations on the scene and in interrogation of suspects" (Tauber 1978:60). The only reference Tauber cites for this study is a personal communication with John Barracato, the Deputy Chief Fire Marshal for the City of New York. Barracato (1979) in a training publication which otherwise offers a decent introduction to arson and arson investigation, insists on offering his own psychological appraisal:

If a married woman sets fire to her bed it generally means she is bored with her marriage." "Like adult setters, juvenile setters frequently have bed wetting problems [sic], and most cannot urinate in the presence of other persons." "Homeowners usually remove valuable items like pianos before intentionally burning their homes. (Barracato, 1979:8,10,22).

In all fairness to Barracato, his claims, most of which are logical, provide practical significance equal to that of the more scholarly psychological studies.

Ultimately arson-for-profit is not a problem for the psychologist, it is a type of arson that is "rational", committed by those who have no psychological malfunction (Tauber 1978). As such, it may well be the most likely type of arson to be solved. Arson-for-profit is the term assigned to all arsons which are motivated by economic gain. It includes the sub-categories of: "Stop Loss"(bankruptcy), "Insurance Fraud", 

64
"Tax Fraud", "Property Improvement" and, "Parcel Creation"27

Estimates of the frequency of arson for profit range from 5% to 30% of all arson fires (see Rider 1980). A spokesman from the City of Winnipeg police department has been quoted as saying that he suspects "70 to 75% of all arsons in Winnipeg are insurance related" (Victoria Times, Feb.15, 1981) a suggestion that does not compare favourably with arson type estimates suggested by the Manitoba official on page 57 of this thesis.

If arson for profit is the most "rational" type of arson one might expect the frequency of arson to increase during an economic depression and to decrease during prosperous times. Hershbarger and Miller (1978) offer some support for this contention but are quick to point out that:

...it is impossible to conclude that arson losses are directly related to recessions and depressions as these economic phenomenon never have been defined precisely. (Hershbarger and Miller, 1978:286).

Scollins (1975) explained how the local economy was a factor in rising arson rates in his particular jurisdiction during 1973. It was not the economy as such, but the resulting availability of cheap property combined with questionable insurance policies and practitioners. When the main industry in Scollin's jurisdiction moved out property values declined, unscrupulous persons purchased buildings at low cost, resold them numerous times (on paper) and in short periods of time increased the insured value of the property. The resulting fires

27 For a description of each see Abt Associates (1980:11).
in what were virtually worthless buildings paid out enormous insurance claims.

While it may appear logical that arson fires increase during hard financial times it is not a necessary condition. The opposite was true for certain areas of the City of Seattle between 1965 and 1975 (Brace 1980). The section of Seattle suffering the highest incident of juvenile-arson was one of the more stable middle class areas. Furthermore, a study by the Institute for Puget Sound Needs (1976) concluded that with respect to the City of Seattle "the levels of arson activity rose during periods of a prosperous economy and decreased when the local economy declined" (as in Brace 1980: 24); unfortunately no explanation was offered.

There also is evidence in Canada that brings the assumed inverse relationship between the economy and arson into question. For example, Lyndon (1978) notes that

...the most rapid growth in the rate of arson is occurring in the most affluent provinces. Perhaps it is because it is in these areas that the uncertainties of the present economy are most strongly felt. (Lyndon, 1978:14).

Alberta, a Province envied for its prosperity, experienced an apparent increase in the number of incendiary fires (44%) and associated dollar losses (625%) from 1972 to 1978 (Ulley, 1980:6).

More recently, the current economic recession has witnessed the claim by some jurisdictions that arson is increasing, and from others that it is decreasing. In fact depending on the
source, some areas note increases and decreases at the same time. Conflicting reports in the Toronto Globe and Mail\textsuperscript{28} and the Montreal Gazette\textsuperscript{29} over whether arson in Quebec is rising or declining are partially explained by one newspaper's cognizance of one fire causing 20 million dollars worth of damage\textsuperscript{30}.

**Summary**

In any given location in Canada there are a number of diverse agencies that may become involved in the investigation of arson. Each appear to collect their own statistics based on their own guidelines. In addition there appears to be some doubt over the existence of formal policy to guide fire crime classifications. Provincially, each fire commission appears to have its own classification scheme. In most, British Columbia for example, these classification schemes have labels, but no definitions.

Federally there are two agencies that present data that are intended to reflect the scope of arson across Canada. One, the Dominion Fire Commissioner, has limited jurisdiction. Limited to the prevention, control, and investigation of crown land, there is no specific legal provision for the DFC to organize or

\textsuperscript{28}Arson Down but Threat Not Extinguished, August 3 1982.

\textsuperscript{29}Arson Rate Soars With Bankruptcies, May 29 1982.

\textsuperscript{30}See also Arson Cases Not on Rise, Calgary Herald, August 17, 1982.
provide assistance in the collection of data outside its jurisdiction. The Dominion Fire Commission collects and presents data from the Provincial Fire Commissions by default. Statistics relating to "Arson and Other Fires" are the legislated responsibility of Statistics Canada, who provide the Dominion Fire Commissioner with their results. Statistics Canada, collects its data from police agencies and according to the criteria of section 389 though section 392 of the Code. These guidelines are less than comprehensive and may explain some of the difference between the yearly "Incendiary Fires" figures and "Arson Fires" figures collected by the DFC and Statistics Canada respectively.

While attempts to grasp the nature of arson are confounded by an apparent lack of guidance (guidance that would assist in consistent use of terms) it appears that lack of attention to inflation and extreme cases contributes to the elusiveness of the scope of fire crime. If progress is to be made in attempting to make fire-crime classification as reliable as possible it is suggested that the apparent lack of concensus over the existance of policy outlining fire-crime types should be considered. A first step may be in attempting to ensure guidance for other "quasi" fire-crime classifications such as undetermined or suspicious cause.

Arson administrators contemplating arson prevention programs must know what type of arson (if any) is dominant in their jurisdiction. In Canada and the U.S. this is a difficult
task. Given the problems outlined in this and the previous chapter the question becomes 'What arson prevention programs are available, and has the data base affected our understanding of the apparent success of these programs?'. This question will be addressed in the following chapters.
IV. PROGRAM EVALUATION

It has been demonstrated that our current knowledge of the nature and extent of fire-crime in Canada and the United States is at best, amorphous. While existing data in certain American jurisdictions should have been enough to stimulate the interest of the public, it appears that they were not. In an attempt to convince the public of the seriousness of the situation those who were instrumental in the organization of the arson movement successfully drew distorted data to the public's attention. The funds that then became available were hastily applied to the creation and maintenance of a number of different types of arson prevention programs. In Canada, existing data, although equally confusing, was suitable evidence of an arson problem to some provincial officials, but, unable, or unwilling to explore the Canadian problem, these officials adopted preventive programs "developed" in the United States.

In times of economic restraint, such as we are presently experiencing, it becomes even more important that resources for arson prevention programs be allocated as wisely as possible. There must be some form of evaluation. A number of arson prevention programs will be discussed in the following chapter. In this chapter, a brief introduction to the problems associated with program evaluation will be presented.
For purposes of this thesis, program evaluation will be discussed in terms of the relationship between goals, strategies and programs related to the prevention and detection of fire crimes. A program is defined as a formal structure or organized effort to implement a strategy. A strategy is an "idea" or series of ideas about how the goal might be achieved. A goal is a statement of the overall objective related to subject in question.

All programs that utilize public funds should be subject to some form of public accounting. Prior to the 1960's accountability of public programs was primarily "in-house" and "ad hoc" in nature (Prince and Chenier, 1980:520). While the call for formal evaluation of "social programs" appears to have its origins in the New Deal campaigns of American Presidents during the 1930's, formal evaluative efforts did not become "institutionalized" until the surge of social programs associated with the "War on Poverty" of the 1960's and 70's (Levitan and Wurzburg, 1979; Biderman and Sharp, 1972:9).

Programs designed to improve the living standards of impoverished North Americans led to the creation of an industry referred to by Biderman and Sharp (1972) as Social Program Evaluation Research (SPER). In 1978 alone the U.S. spent approximately $140 million evaluating federal social programs (Levitan and Wurzburg, 1979:3).

To Levitan and Wurzburg (1979:ix) evaluation "is broadly defined to include the presentation of evidence on program
performance and its impact." A number of different types of evaluation exist for the evaluator to choose from. "Process Evaluation" (Levitan and Wurzburg, 1979:10; Cain and Hollister, 1972), also referred to as "On-Site Monitoring" by Williams (1972:4) centers around the integrity of the establishment and maintenance of the program and ensuring that intervention tools implied in policy mandates are adequately implemented. While a program may fail for numerous reasons, Process Evaluation will assist in distinguishing between a poorly conceived program and a poorly processed program. Failure may have been due to lack of staff, improper "target selection", or environmental conditions peculiar to a particular program. (Levitan and Wurzburg, 1979:11-12).

"Impact Evaluation" (Levitan and Wurzburg, 1979:13) also known as Outcome Evaluation (Williams, 1972:4) or on occasion "Cost-benefit analysis" (Rossi and Williams, 1972) is, in the simplest of terms, designed to gauge the results and examine the accomplishments of a program. In a multi-faceted arson prevention and control program (eg. one involving preventive patrols, media campaigns, and arson information management systems) an impact evaluation should assist in determining "which tactics work and how successful the programs utilizing them have been". (Levitan and Wurzburg, 1979:13).

Aside from the general problems of selecting the proper target, specifying goals, and establishing valid measures of effectiveness (Cain and Hollister, 1972; Rossi and Williams,
two other related and recurrent issues in the program evaluation literature merit special attention for those interested in obtaining an evaluation of an arson prevention and control program. First, who should do the evaluation and what are the possible drawbacks associated with the choice of evaluator? Second, how urgent are the results?

Evaluation: Who Should Evaluate?

Deciding on an evaluator may have as much effect on the success of the evaluation as the actual program features. Success is not merely the effective utility of program evaluation but the effective completion of evaluation. When deciding upon who should evaluate a public program three general groups of evaluators\(^1\) are available. These are: evaluations by government (or "in-house"); universities; or private consulting firms. In some instances government may hesitate to become directly involved (other than to provide funding) in the evaluation of a program it is instituting to avoid claims of political interference or for fear of impeding the implementation of the program. In addition, government agencies simply may not have enough qualified personnel on staff to prepare or process program proposals (Biderman and Sharp, 1972).

\(^1\)The three groups are "ideal types" in that they are not as easily segmented or distinguishible in actual practice. For a more detailed description of the different "evaluators" that exist, the interactions between these groups and the advantages of relying on one "group" over another see Biderman and Sharp (1972).
There are, however, a number of advantages to in-house evaluations. For example, external evaluators may consume a certain amount of time simply trying to cultivate a level of rapport with those involved with the program being evaluated (Riecken, 1972:85). Consequently, one of the benefits of in-house evaluation may be to enhance cooperation between the evaluator and program personnel. Further, access to data, familiarity with surroundings, and personal knowledge of the program tend to make this type of evaluation potentially more successful (Suchman, 1972:79; Riecken, 1972:99).

What appears to be the most obvious disadvantage of in-house evaluation is the concern that the results may be little more than public relations efforts from those who have much to lose from being over critical of their own program (Szabo and Rizkalla, 1978:22). If an evaluation is not in-house the remaining alternatives are: evaluations from private consulting firms or; from university based research centers. While it would be naive to think private firms and universities are beyond the reach of political intervention it would appear that the university setting does offer the opportunity for a closer approximation of value free judgements. Voicing this sentiment Rossi (1972) notes:

...evaluation researches provided by private industry may not be of very high quality and may be more in the way of public relations 'image management' than adequate evaluations. (Rossi, 1972:37).

Concerned with such problems (problems that appear to be the
result of competition for contracts) Biderman and Sharp (1972) have compiled an interesting manual of the pros and cons of selecting a private or a university based evaluator. They note that the race for evaluation contracts has led to a situation where:

Large-scale field surveys; maintaining up-to-date computer software and applying it to successive generations of computer hardware; elaborate liaison with sponsors of research on both technical and administrative matters are among the many demands of current research requiring fairly elaborate research organizations, backed up by business staffs. (Biderman and Sharp, 1972:25).

The rise of the evaluation research industry and the subsequent increase in competition for contracts, has led to a decline in social science rigor in the field of evaluation research by quasi-social scientists. Biderman and Sharp (1972:26-29) also point out a corresponding rise in a new terminology: researchers prefer to be labelled systems analysts, management consultants, or engineers. Rather than research, these people "analyse", "study" or evaluate". In addition, the competition for evaluation research contracts has led to the use of questionable ethical practices by a few organizations. For example,

The difficulties of advance specification of SPER requirements can encourage the devious research entrepreneur to bid unrealistically low with the expectation of being able to persuade the agency of the need for additional work at greater cost, once the agency has sunk costs in his firm... (Biderman and Sharp, 1972:43).

Regardless of who chooses the evaluator, persons directly involved in programs or an administrator whose position remains unaffected by the evaluation, it is not difficult to empathize
with the feelings of distrust that either group may experience. Fear of evaluation may be justified:

...the scientist often regards an evaluation study as a rare opportunity for field research and will therefore try to subject the program to the constraints of an experimental or quasi-experimental design. He will want to publish his results regardless how embarrassing they may be to the program administrators and he will want to see decisions made on the basis of his results. These differences in vested interests will often lead to conflicts between the parties involved. (Normandeau and Hasenpausch, 1980:310).

With the exception of those "rare, but happy circumstances where the customer wants to have his erroneous presuppositions challenged" (Biderman and Sharp, 1972:53) it would appear that "in-house" or private sector evaluation would offer persons who fear for their future and the future of their programs, a less threatening alternative.

Universities and private agencies (notably the Stanford Research Institute, Abt, and Battelle) have been involved in arson prevention and control research and evaluation but the bulk of specific arson prevention program evaluation efforts appear to best fit the category of "in-house" evaluations. Before describing these efforts a second general area of concern - the urgency of the results - will be addressed.
Evaluation: The Time Factor

Selecting an evaluator requires compromise; compromise influenced by the perceived needs of those who do the selecting. If private agencies are in fact less immune to political intervention and produce a lower quality product they still may be desirable if such negative features allow them to produce results faster. Efforts to maintain academic excellence may lead university researchers to spend more time than is desired. Orleans (1968:137) notes:

...among the kinds of research singled out as inappropriate for universities were projects... providing quick answers.

The basic concern for criminal justice administrators is one of obtaining quality evaluation in a reasonable time frame. If administrators are pressured into providing immediate action to placate their superiors or the public a possible alternative to the alleged excessive time consumption of pre-program evaluation planning may be evaluation which ignores pre-planning per se but incorporates it into "post evaluation". Running against the grain of the most basic of program evaluation principles certain situations arise where:

An iterative procedure is called for in which the process of evaluation goes on simultaneously with a 'search' for the objectives of various elements of the program. The attempt to follow the usual dogma of evaluation, starting with the definition of a single objective - or a hierarchy of objectives - for the program, are bound to fail. (Cain and Hollister, 1972:114).

The key objection to such an approach appears to be that the
reliability and validity$^2$ of program evaluation are considerably tainted. According to Kuppersmith (1975:3)...

To insure the collection of data needed to assess program activities and outcomes adequately, evaluation plans must be developed prior to program implementation. Where these plans are either absent or unsatisfactory, the chances for obtaining useful evaluation information appear to be greatly decreased.

Normandeau and Hasenpush (1980:307), however, point out that either explicitly or implicitly, the program evaluation process continues throughout the development of the program.

Regardless of the validity of the claims of those behind the arson movement described in chapter I of this thesis, arson prevention and control was and is perceived by many as in need of immediate action. Program evaluation measures may add to the time consumed in implementing programs. Attempts made to implement such safeguards of the public purse may be viewed as excessive in terms of the attempts being made to safeguard lives and public property. If a university consultant is involved in the evaluation and time consumption is increased the likely result would be an entrenchment of views that universities are prepared to waste precious time, analysing, testing, and debating while the surrounding community is consumed in flames.

$^2$A reliable measure is one that is consistent regardless of who makes the measure and when or where the measure is used (Campbell and Stanley, 1963). Definitional problems demonstrated in the first two chapters of this thesis illustrate the confusion caused by the lack of reliable measures. Similar problems extend to the interpretation of program results. A valid measure is one that is accurate, that is the fire-crimes being studied must actually be fire-crimes and the different types of fire-crimes must be accurately categorized.
Although not referring to arson programs, concern has been expressed over this issue by Johnson et al. (1975) and Cushman (1978), both noting that preparation for evaluation may forestall program implementation for months or even a full year.

**Evaluation: "Traditional" or the "Alternative"?**

While differing slightly from author to author, the following guidelines are offered as an example of what should be included in a comprehensive program evaluation:

1. A detailed description of the type, quality and quantity of the activities (program effort):

2. An accounting of the program's expenditures and the sources of funding:

3. A subjective assessment of the program's desired and undesired consequences by the staff, the clients and other parties directly involved:

4. A scientific study on the question of whether the program's goals have in fact been achieved and whether it may be assumed that they have been achieved as a result of the program (program effect):

5. An analysis of the program effects in relation to their costs and in relation to the cost and effect of other, alternative programs; and

6. An indication of the program's acceptance by the public, of the opinions of groups supporting and opposing the program, and similar politically relevant information, e.g. the public's perception of the program's outcome..." (Normandeau and Hasenpaush, 1980:309-310)

Hereafter, program evaluations which attempt to follow the above guidelines will be referred to as "traditional" program evaluation attempts. The problems of evaluation discussed in
this chapter primarily relate to implementation of traditional program evaluation and are discussed in more detail by Levitan and Wurzburg (1979:127-139), Cain and Hollister (1972:135-137) and Posavac and Carey (1980:299-314). Each, in turn, then offer ameliorative "solutions". Discussions on the subject of program evaluation include entire chapters on effectively applying the results of an evaluation. For example Posavac and Carey (1980) include sections entitled "Program Evaluation: How to get it read" and "Program Evaluation: How to get it used". Recently, however, concern has been raised over the direction of those associated with traditional evaluation research. Hackler (1979), recognizing the problems of traditional evaluation, argues "against our continuing pretense at evaluation" and apparently considers the suggestions of others to be "band-aid" solutions to a problem that requires "major surgery". Hackler states:

Given these failings of the usual techniques of evaluation, I will suggest an alternative: careful record keeping and the extended use of administrative data would be far more rewarding than attempts at evaluation which are misleading, which do not answer crucial questions, and which create a variety of stresses that endanger positive changes in our criminal justice system. (Hackler, 1979:40).

Recognizing that "policy oriented research is badly handicapped by 1) a poor data base, and 2) poor rapport between researchers and practitioners" (Hackler, 1979:50 fn.2) he describes an "alternative" to traditional program evaluation; one that in the long run should provide researchers with more adequate data:

One alternative is to focus on much more modest goals while emphasizing good recordkeeping and machine retrievable data for day to day administrative purposes.
By encouraging indigenous personnel to use such data to answer simple questions, the stage is set for more sophisticated research later. Deliberate attempts to keep data analysis simple and understandable to those administering programs is more likely to develop a vested interest in better quality data than beginning with more sophisticated ideas which force a strange data gathering system onto a suspicious staff. Even modest statistical tools can yield revealing information, and once committed to asking questions, a criminal justice system may be receptive to asking more theoretical questions. (Hackler, 1979:50).

Hackler (1979), arguing against the use of independent outside researchers and for less sophisticated research techniques, appears to have caused a defensive reaction on the part of some program evaluators. Normandeau and Hasenpusch (1980:317), for example conclude their article by noting "The evaluations should be prepared by outside researchers to increase the probability of obtaining reliable, objective, and publishable results." If the approach that evaluation needs to be improved through adherence to methodological rigor gives way to Hackler's contention that the process of evaluation needs a major theoretical revision the result may be a situation where those who once stressed the "white-wash" tendency of in-house evaluation gain personal insight into the reasons for this tendency.

Given this brief introduction to program evaluation in general, the following chapter will review four types of arson prevention and control programs. These are: training and detection, arson prevention patrols, arson prevention media campaigns and, arson information management systems. Most of these programs were not designed to allow for traditional
evaluation, however, where possible, evidence of adherence to such principles will be presented. The "alternative" to traditional program evaluation offered by Hackler (1979) is an inherent component of the arson information systems discussed in the latter section of the next chapter.
V. ARSON PREVENTION PROGRAM EFFORTS

Arson prevention programs may be directed at different "targets". Some may be aimed at the general public to facilitate attitude changes respecting the willingness of citizens to volunteer information, while others may be designed to influence the behavior of "border-line" arsonists or to reduce certain types of arson such as arson in businesses, automobiles, or residential dwellings. Certain types of arsonists may be the target of the program; juvenile vandals, arsonists who burn for profit, or arsonists who contract out to "organized" crime. In this chapter four different arson prevention programs will be reviewed. The four that will be discussed are:

1. Arson Detection and Training Programs.
2. Arson Prevention Patrols.
3. Arson prevention Media Campaigns.

Each may be implemented separately, although it appears to be common for two and usually three to be run contemporaneously. It will be demonstrated that in most circumstances it is best to implement one type of program first as a means of providing information upon which to guide subsequent programs. The assertion that Arson Information Management Systems should be implemented prior to the others relates to Hackler's argument for a stress on "records keeping" and "record linking".

83
Arson Detection and Training

Perhaps the most important and basic of arson prevention and control programs, subject to less controversy (in terms of cost-benefit) than other more recent and innovative tactics, are those programs which "target" the personnel directly involved. That is, programs designed to produce attitude and behavior changes in police and fire service personnel are fundamental for increased and improved data collection - reliable and accurate data are the cornerstones of all other programs. If a more valid and reliable measure of the incidence of arson is to be developed, the foundation of this task is directly related to the attitude and behavior of police and fire personnel on the line level.

Training programs in general have posed a unique set of problems. It is difficult to measure the efficiency and or effectiveness of their impact on the actual performance of personnel. Efforts to improve training tend to emphasize the quality of instructional materials and other less abstract "things" than an actual change in knowledge. But efforts to evaluate training programs should at least attempt to consider qualitative as well as purely quantifiable measures...

If training is aimed at facilitating change in the criminal Justice System or improving the way a job within the system is performed an evaluation of a training program must link action (impact) to the learning process. In other words, the evaluation should present data on job or system impact subsequent to the training not merely data on the training materials, program design or trainee satisfaction. (NILECJ, Exemplary Projects, 1978).
Attempts to improve arson investigation training have sustained constant yet low levels of activity for decades.¹ The arson movement of the 1970's may be credited with what has been described as a drastic rise in the quantity, quality and access to such training (FEMA, 1982) yet, evaluations designed to assess the impact of training do not exist. While evaluations do not exist, extensive and or improved training has, however, been the subject of debate based on the perceived impact of improving arson recognition capabilities. Fear of increasing the number of known arsons by increasing fire cause determination capabilities - without a corresponding increase in convictions - has been expressed by a few experts charged with responsibility for arson investigation training. While it appears that this controversy has been resolved (in favor of more training) the issues that arose not only bear repeating but are vital to future research, comparative analysis, and evaluation of arson and arson investigation.

In theory, as Robinson (1979) and Kuryk (1976) indicate, recognition of a fire as an arson fire is not difficult. Under ideal circumstances such as good weather, rapid supression of the fire and careful preservation of the fire scene, Robinson and Kuryk are probably correct. Current scientific knowledge is such that fire accelerants like gasoline and solvent can be

¹ For example the Journal of Criminal Law, Criminology and Police Science published no less than 100 articles centering around arson investigation techniques between 1940 and 1960. See also the bibliographies in Tauber, 1978 and Boudreau et al., 1976.
detected from minute traces of charred material (Fisher, 1978:36). In practice; however, ideal circumstances are seldom found. In freezing temperatures a fire extinguished by water leaves evidence encased in a grey block of ice; in rural areas the nearest volunteer fire trucks may be miles away; and firefighters must do all they can to ensure that once a blaze is out it stays out. It is not uncommon for walls and ceilings to be subjected to the firefighter's axe and smouldering material to be tossed out of a window. Such activities, which are often necessary and unavoidable, make the detection of an arson fire difficult.

With respect to scientific achievements some investigators state that they can smell and locate gasoline as accurately as the flammable vapor detectors that they carry (Boudreau et al., 1977:61). Further, most crime laboratories require the person

2 An interesting analogy may be drawn between arson and impaired driving. Similarities between portable "gas sniffers" (Hydro-carbon detectors) and the portable Alcohol Level Evaluation Roadside Tester (A.L.E.R.T.) are striking. Gas "sniffers", ranging from $1000 to $4000 may be purchased by arson investigators to confirm what their noses already tell them while the A.L.E.R.T. machines will confirm police suspicions that a person with bloodshot eyes and smelling of an alcoholic beverage has indeed consumed alcohol. Authorities lacking access to such machines must utilize more reliable facilities which usually are not portable. Authorities who do have the portable machines, however, must follow the same procedure.

Although unable to locate any studies which analysed the number of times police officers incorrectly detain impaired driver suspects, it appears that before investing in portable sniffers arson investigators might wish to conduct that type of study. Assessing the frequency of charred samples suspected of containing accelerant residue which the laboratories have returned as "unable to locate presence of accelerant" may assist in the decision to purchase such equipment.
submitting evidence to indicate what he expects to find. That is, the labs will run a set number of tests to determine what type of accelerant was used but if the actual product used is not within that group the lab will not be able to identify it.3

Increasing the arson recognition capabilities of fire and arson investigators does not mean that a corresponding increase in arrests and convictions will necessarily follow. Better training for arson investigators may result in a more accurate account of the true incidence of arson but the resulting "increase" may be illusionary. Carter (1980), the Chief Fire and Arson Investigation Specialist for the NFPA, has responded to this problem in the following terms...

There are those that attempt to explain away these phenomenal increases, claiming that the arson problem is really not so severe. One explanation is that better detection and identification of arson naturally lead to such an increase. Another explanation is the tendency to follow the fire cause identification trend. Both of these contentions have only limited merit and, in my judgement, have little significant impact on the figures. While an increase in the value of property may influence the monetary loss, it certainly cannot explain the increase in the number of questionable fires. (Carter, 1980: 5).

Carter does recognize the possible effect of rising real estate values on the dollar loss associated with arson but denigrates better training as causally connected with an "increase" in the number of arson fires. However, he later notes that with reference to the arson epidemic:

Fire and Police officials were not entirely blameless,

3 This information comes from the Illinois State Commission on Arsons (1978), and from discussions with arson investigators in British Columbia.
as in some jurisdictions fire and police investigative responsibilities were not defined. As a result arson was often not detected and uncoordinated investigations were attempted with little cooperation or exchange of information between representatives of the two services. (Carter, 1980:51).

Thus, while noting that delegated and cooperative investigations may result in "more" arsons Carter dismisses the possibility that the same may be true with increased training.

Moll (1974:7) also questions the possibility of better training as having an effect on the number of arsons recorded per year. As support he refers to the Arson Unit in the City of San Francisco. During a fifteen year period the arson unit remained constant in size and structure, personnel experienced no increase in quality or quantity of arson training, the population of the city actually decreased, but incendiary fires rose by a factor of 10. These statements were introduced by Moll (1974) as support for the contention that there was a real increase in arson incidents not simply an apparent increase due to increased arson recognition capabilities. Reviewing the San Francisco example provided by Moll it is interesting to note that although a large portion of the report focuses around riots and civil disorders Moll fails to discuss the possible effect of such incidents on arson data in San Francisco between 1956 and 1974.

In keeping with the general thrust of their report, Boudreau et al. state that programs designed to improve investigations will both increase and decrease the number of fires labelled as incendiary:
It has been established that as investigative effort is increased the number of fires labelled as incendiary is significantly increased. (Boudreau et al., 1977:4).

Then, relying on Moll (1974), for support, they state:

It is not believed that these increases were due to an increased efficiency in investigating and reporting incendiary fires, as has been suggested. (Boudreau et al., 1977:7).

In essence there were a number of influential persons or groups which appear to ignore the possibility of "instrumentation effects". An "instrumentation effect" occurs when:

...changes in the calibration of a measuring instrument or changes in the observers or scorers used may produce changes in the observed measurements. (Campbell and Stanley, 1963:5).

Internal Validity, "the basic minimum without which any experiment is uninterpretable" (Campbell and Stanley, 1963:14) is extremely threatened by instrumentation effects. Considering the reported increase in quantity and quality of arson investigation training (FEMA, 1982) it is safe to state that from the beginning any evaluation of arson programs failing to recognize this "threat" is likely to produce questionable results.

Increasing the ability of an arson investigator to accurately detect a fire as an arson fire and training investigators in all aspects of arson (cause, evidence collection, testifying etc.) are factors crucial to the formation of a reliable data base. The ability to correctly identify an arson fire and further, determine the type of arson (vandalism, profit, revenge etc.) has far reaching consequences for programs designed to alleviate what is perceived as a
prevalent type of arson. At present there is no indication of the effects of training (although an increase in quantity and quality has been proclaimed) that illustrate impact (Outcome Evaluation) subsequent to training.

Arson Prevention Patrols

Other preventive programs, such as "directed deterrent" or "saturation patrols" in high frequency arson areas and the boarding up of abandoned buildings have been implemented in a few jurisdictions. It appears, however, that a major requirement for the development of preventive patrol programs is not only an extremely concentrated problem but also an extremely flexible budget. In New York, for example, during one time period, as many as one hundred "new" men (that is, men not drawn from already available fire suppression personnel) patrolled selected areas reducing arson in those areas by 40% (Abt Associates, 1980:88).

On a more practical level the City of Seattle organized an arson patrol utilizing otherwise unoccupied fire suppression personnel; all were still responsible for attending regular fire calls in their jurisdictions. Aside from possibly deterring juvenile arsonists another stated advantage of such patrols was decreased response time of arson investigators to the scene of fires (Abt Associates, 1980:87-88). Others who have instituted similar saturation patrols claim that:
Saturating arson areas with investigative personnel will significantly reduce set fires during the period of patrol. (Estepp and Caddington, 1977:21).

In one city, police officers have been indirectly assigned responsibility for arson patrols. The City of New Haven Police Service has a Directed Deterrent Patrol (D-Runs) program and when requested will add computer selected arson prone targets to such patrols (Siatt, 1981).

A number of experiments involving police patrols have been conducted in the United States. A few have been summarized by Wilson (1978). While these experiments (usually involving increased manpower in certain areas compared to "no change" manpower in other control areas) have been noted as successful (reduced crime) the possibility of crime displacement, and the short term experimentation periods leave the results inconclusive. Further, as Wilson (1978:206) points out, the New York City "subway" experiment which placed a police officer on every second subway car during certain hours, did reduce certain types of crime but at a cost of "$35,000 per deterred felon".

Recognizing that these studies, and other studies of the efficacy of police patrol\(^4\) are general in nature, it is suggested that the findings of these studies nonetheless are of importance to arson administrators. The Kansas City study (Kelling et al., 1974) indicated that in Kansas, during the period of study, routine patrol did not appear to affect the

\(^4\)For example the Kansas City Preventative Patrol Experiment, Kelling et al., 1974; or The Wilmington Split-Force Experiment, Tien and Larson, 1977.
incidence of crime. The implication is that some of the time spent on preventive patrol would be better used in more productive endeavors.

The use of "D-Runs" or saturation patrols is not considered an attractive possibility among the arson prevention alternatives that exist. They require a highly concentrated problem and a large amount of resources. In addition, experimentation with such programs in Canada\(^5\) (centering on break and enter offences) have not met with any degree of success. In Canada the only experiment with directed patrols specifically relating to arson occurred in St. John, New Brunswick but was abandoned in favor of a reward program advertised by the media and based on Seattle's mass media campaign (Marshall, 1977:49).

**Arson Mass Media Campaigns**

In certain jurisdictions, a reduction in arson has been partially attributed to arson prevention and control media campaigns. As with all programs, media campaigns require funds and resources. During times of resource scarcity, allocation of such commodities must be distributed in the best cost-benefit manner possible since emphasis on one program is likely to be at the expense of others. Programs aimed at affecting a crime that

\(^{5}\)The City of Calgary Police Service experimented with saturation patrols in January-March of 1980 and D-runs in May-June of 1980. Both programs have been cancelled.
has only recently entered the arena of public concern should be subject to a high level of scrutiny. The past absence of efficient and effective programs may increase the likelihood of new programs being hastily adopted by administrators anxious to demonstrate their willingness to suppress the crime and consequently, gain access to newly released funds.

Consider the arson prevention and control program in Seattle. Not designed for evaluation, many facets of that program — the "pure team" concept\(^6\) of arson investigation; arson patrols; and more frequently, the media campaign — were readily adopted by American cities such as Phoenix and Anchorage. With the exception of the "pure team" concept of investigation, Canadian jurisdictions, such as British Columbia, Alberta and Manitoba also adopted similar programs.

In the U.S., duplication was primarily due to the availability of federal funding (a result of the American arson movement) for areas "willing" to experiment further with such programs. While these programs have been in existence in some jurisdictions since 1976 (eg. Seattle) it was not until the 1980's that arson administrators began to think in terms of cost effectiveness via serious pre-planning and evaluation (FEMA, 1980). Since 1980, FEMA has produced documents designed to

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\(^6\)Seattle paired members of the fire and police services and allowed them to conduct all phases of the investigation together. "Pure team" is this author's term, and is necessary since the team concept is often defined as fire service members conducting the "cause" side of the investigation on their own and then having police members conduct the rest of the investigation.
assist arson administrators in addressing the problems of program evaluation.

One method used in a recent attempt to evaluate the effectiveness of a media crime prevention campaign (not involving arson) in Alberta, was to question a sample of the population and measure retention of campaign slogans (Sacco and Silverman, 1979). Similar methods have been used in the U.S. with respect to incendiaryism in forested areas (Tauber, 1978:66). The Canadian and American studies have cast doubt on the effectiveness of mass media messages. In questioning the effectiveness of the particular mass media campaign they studied, Sacco and Silverman (1979) provide suggestions for more effective use of such programs. For example, a major weakness of the Alberta campaign was that:

Target audiences should have been more precisely identified with respect to their relevant sociological, psychological and demographic characteristics; and the formulation and transmission of campaign themes and messages should have taken such characteristics into account. (Sacco and Silverman, 1979:199)

Sacco and Silverman also note:

In attempting to achieve the widest possible exposure, the Alberta campaign was directed towards a geographically dispersed audience that was conceptualized as relatively undifferentiated. However, 

---For example, two recent U.S. government documents have been developed to assist arson administrators in implementing and evaluating arson prevention media campaigns. The identification of objectives, selection of target audiences, message designs as well as the need for implementation based on sociological variables (social class), are outlined in FEMA (1980) and detailed accounts of effective evaluation techniques are discussed in The Handbook for Arson and Prevention and Control Programs (Seigel, 1980).---
such a strategy fails to consider the extent to which effective communication is the product of an interaction between characteristics of a message and characteristics of the audience. (Ibid, 199)

A further problem that may have confounded the effectiveness of the Alberta general crime prevention mass media program was that a number of different types of appeals such as deterrence, personal protection, and community well being, were not necessarily related to each other in a motivational sense:

The crimes that formed the focus of campaign attention shared little in common with respect to ameliorative strategies. As a result campaign messages advocated several distinct crime prevention behaviors. (Ibid, 200).

Although it has been noted that the success of Seattle's arson reduction program was as likely due to instrumentation and statistical regression (see pages 33-34 of this thesis), and noting that their program was not designed for evaluation, the campaign did have a number of attractive features to it; features that apparently address the Sacco and Silverman concerns of: targeting audiences, matching messages to appropriate audiences and, specifying crime prevention behavior. For example, attempts were made to address specific audiences likely to be involved in specific types of arson and the messages were displayed via different mediums at appropriate times.

The Seattle arson media campaign was split into two facets; one targeted at juveniles and one at adults. Local professional athletes appeared on television advertisements during times and programs which drew a youthful audience. Newspaper and billboard
advertisements were designed to address adult members of the community. The approach taken by the advertising agency handling the campaign attempted to address the problem of public apathy toward arson. To address the problem of apathy — if not empathy — the agency attempted to ensure that the public would associate arson with crime, and then attempted to instill an onus on members of the public to provide any information they might have. The fire chief at the time noted that:

Many of the spot announcements are, to a degree, requesting neighbors to inform on neighbors. The advertising agency felt the hero concept would be more acceptable than any other approach. (Maguire, 1976:23).

Known as "Arson Alarm" the stated purpose of the Seattle media campaign was:

1. "to receive substantial leads on arson fires and;
2. to emphasize the excellent chances the arsonist has of being caught and going to jail. (Maguire, 1976:22).

The first stated purpose may be viewed in terms of process evaluation; that is, the efficiency of this objective may be measured through documented changes in the number of "tips" received either through mechanisms such as advertised arson information phone lines or numbers of witnesses coming forth during the initial investigation. Not designed for stringent evaluation, the success of this objective is left to the judgment of those who conducted a form of in-house evaluation, that is, reports from the Seattle fire service.

Modelled after Seattle's media program, British Columbia's "arson alert program" (in existence since 1979 - initiated in
1978) has yet to be evaluated. One segment of the program, the "arson hot-line", which is still monitored three times a day, is viewed with ambivalence by some members of the B.C. Provincial Fire Commissioners Office and enthusiasm by others. Regardless of whose opinion of the value of this feature is "correct", the point is the arson hot line has never received any type of evaluation.

The second stated objective of the Seattle media campaign, emphasizing apprehension, rests on the deterrence effect of the main campaign slogan "If you start an arson fire in Seattle, you stand a good chance of being caught. And if caught, you stand an even better chance of going to jail." (Abt Associates, 1980:89). The claim may have been hollow or exaggerated but the intent was to make people perceive the risk factor as extreme. This "threat" to the public at large is very much akin to what Fattah (1976) refers to as the "perceptual approach" to deterrence. He notes that:

Studies of the "perceptual approach" have tried to assess the degree of public knowledge of criminal sanctions as well as the gap between objective risks and

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During the research conducted for this thesis a number of informal interviews were conducted with members of the Provincial fire commissioner's office. Although the persons who made either the positive or negative comments respecting the arson hot-line are well aware of the differences of opinion that exist, it was stressed to members that the interviews were confidential.

Fattah (1976:13-15) discusses the distinction between specific and general deterrence. Specific deterrence refers to the deterrent effect on an individual, through incapacitation, fines etc. while general deterrence refers to the threat of punishment and it restraining effect on criminal conduct.
subjective risks as perceived by offenders and non-offenders. (Fattah, 1976:100).

If anything, however, the use of slogans warning of the chance of being caught and convicted is a perceptual ploy, the validity of which has yet to be studied.

Measurement of the Seattle arson media campaign could have been attempted through an "effect" or outcome form of program evaluation giving appropriate weight to the problems of official statistics. The decision, however, to adopt an informal, in-house approach (which failed to recognize instrumentation effects) leaves Seattle's claims of reduced crime highly questionable. Regarding official statistics Sacco and Silverman (1980) note that:

...the employment of official crime statistics as measures of campaign success presents the evaluation researcher with several problems. Since these measures reflect reportability, as well as actual crime levels, their fluctuation over the program period is difficult to interpret...[a] statistical decrease, of course, could be viewed as suggesting that increased crime prevention behavior on the part of citizens has resulted in the lowering of actual crime levels. Alternatively, an increase of crime might be reflecting a greater reportability of offences rather than a program failure. (Sacco and Silverman, 1980:45).

With respect to the possibility of an "apparent" increase in the crime due to an increase in reportability (a factor that could be construed as program success) it has been suggested that a certain number of arson fires are not reported (as distinct from arson fires being incorrectly labelled as

New criteria for selecting those fires that would be investigated with arson in mind are likely responsible for making Seattle's official arson statistics appear to decline (see page 33 of this thesis).
"unknown", "undetermined" or "suspicious"). Speaking of fires in general, Tauber (1978:76) notes that:

A fire department is called to fewer than 10% of residence related fires and to fewer than 30% of other fires.

It appears that Canadian officials also suggest that a substantial number of fires in general are not reported. Noting a decrease in Canadian fire incidents in 1976, the Dominion Fire Commissioner offers the following explanation:

The general increase in property values would account in part, for the higher dollar loss. But we must when comparing the number of fires recorded, and the seemingly downward trend in numbers, recognize the fact that because of the deductability clauses in the new insurance policies fewer fires are reported.

If, for whatever reason, some fires do not come to the attention of the authorities the sentiments of one school of thought on the use of "unofficial crime reporting" (victimization surveys) comes to mind:

Should we include in our inventory of crime the many trivial offences which are elicited by the probing interviewer but are too petty to be brought to the attention of law enforcement agencies? (Levine, 1978:105).

The answer to such a question will depend on the goals, priorities, and resources of each jurisdiction. It may well be important to consider minor arson fires\footnote{Through the use of victimization or "self-report" surveys.} that occur unreported if they occur in areas where a fire out of control poses a threat to life and property.
Other mass media campaigns have been noted to emphasize two related objectives: "to communicate general crime prevention awareness as well as specific risk-reducing skills to the large audiences that regularly attend to these media." (Sacco and Silverman, 1979:191). Most arson prevention and control media campaigns, readily conform to the first major objective, few to the latter. It is difficult to imagine specific risk-reducing skills, such as locking automobile doors (Burrows et al., 1979) or other "target hardening" elements such as the installation of anti-theft devices (Riley and Mayhew 1980:3) that could apply directly to arson. Keeping ignitable debris away from one's home or safely keeping accelerants out of sight and reach may apply but are more in the realm of general fire prevention rather than specific arson risk reduction.

On a more extreme level, a specific risk-reducing skill that may be appropriate for transmission is suggested by Seigel (1980). The "skill" is the researching of property ownership by neighborhood organizations to reveal potential arson targets and using the information to pressure the city to secure or demolish abandoned at-risk buildings (Seigel, 1980:8). This particular suggestion, however, originates from an organization located in Boston - an area where the frequency of arson incidents in the 1970's made arson a major concern for residents of certain areas. Many of these areas had large numbers of abandoned or obsolete building which may be classified as being in a higher risk category. The scope and nature of Bostons arson problem,
which was instrumental in the success of the American arson movement, was not what Brady (1982:249) referred to as "extreme but hardly unusual". Certainly the problem was extreme but the extremity led to citizen action groups willing to devote the time and effort to what had become a very salient issue to members of certain Boston neighborhoods.

The problem of public "apathy" toward crime is also noted by Sacco and Silverman (1979:198). For the population in their study, it appeared that "Provincial residents did not regard crime or crime prevention as particularly salient issues". In light of the alleged apathy toward arson, attempts to make this crime a salient issue creates an anomaly. If the public is apathetic, the use of media campaigns as public information may be regarded vital by those persons or "official" agencies interested in preventing the crime. But if the public does not regard the crime as important, such campaigns are unlikely to be successful. In other words, mass media crime prevention campaigns may be most successful when addressing a concern which already exists. It is not that the evaluation of media programs has resulted in evidence refuting program success in terms of behavioral change, but instead past evaluation of some of these programs appear to demonstrate that in areas where crime is not considered a major problem it takes something other than media messages to generate public concern. This raises the question 'If citizens do feel secure in their neighborhoods why spend public funds to attempt to change this situation?'.
The concluding comments of Sacco and Silverman are of special significance for those considering an arson prevention and control media campaign. They note that experimentation with pilot projects should be encouraged "if their implementation does not drastically direct resources away from more efficient crime reduction strategies." (Sacco and Silverman, 1980:200).

With respect to the cost of the Seattle program, media time (television, radio, and newspaper) was donated by the respective mediums. Out of pocket cost to taxpayers was further reduced by contributions from insurance companies. In times of scarce resources, funding, such as that received by Seattle for its arson programs in general and arson media campaigns in specific, may also become scarce. In times of limited resources a decision must be made to allocate funds that are available to the most effective and efficient programs available. One program that may be more beneficial than experimentation with media campaigns—and in fact should precede arson media campaigns—is the use of Arson Information Management Systems.

Arson Information Management Systems

Criticism of the evaluation of crime prevention programs

For one person's definition of crime prevention see Normandeau (1980:308). Normandeau uses the primary (changing physical and social environments that provide opportunities for crime), secondary (pre-offence intervention) and tertiary (post-offence intervention) distinctions as developed by Brantingham and Faust (1976). AIMS may be useful for all three types.
is evident in the writings of Logan (1972), Hackler (1979) and Normandeau and Hasenpusch (1980) and has led to controversy over the efficacy of the evaluation process rather than of the actual program being evaluated. Addressing the problems of time; choice of evaluator; and cooperation between researchers and practitioners (as outlined in the preceding chapter) Hackler (1979) suggests that emphasis should be placed on accurate record keeping and record linking and also notes that strategies designed to overcome the problems of rapport and a poor data base deserve more attention than those that favour sophisticated data analysis (Hackler, 1979:50 fn.2). The AIM systems described below appear to address and integrate portions of "traditional" program evaluation with the suggestions of Hackler; evaluations are primarily in-house, the problem of rapport is nullified, the system in effect will improve the data base and, in most cases, modest statistical techniques are used.

The importance of accurate and careful record keeping with respect to arson has been addressed in previous chapters of this thesis. Recognizing this need a number of American cities have attempted to develop jurisdictionally sensitive information systems:

The Arson Information Management System (AIMS) is a structure designed to collect, organize, and analyze data in order to generate information to improve the effectiveness of the arson prevention and control decision-making process.

13Notably the Normandeau and Hasenpusch (1980) article which was in objection to Hackler's "alternatives to evaluation".
The objective of AIMS is to:

1. Identify arson causes (in order to)
2. Predict arson patterns (which will allow decision-makers to)
3. Target appropriate intervention and preventive strategies (and to)
4. Use as an investigative and case development tool."
(FEMA, 1981:1).

In effect, Arson Information Management Systems are programs subject to process and outcome evaluation but at the same time, and perhaps more importantly, are tools with which to measure the efficiency and effectiveness of alternative arson prevention and control programs. Numerous arson prevention and control programs have included, or revolved around, experimental versions of this concept using methods described by terms such as "Arson Pattern Recognition" (Estepp, 1977), "Arson Warning and Prevention System" (Logue, 1980) and, "Arson Pattern Analysis" (Alletto, 1979).

Most of these information systems profess similar goals and objectives. The measured success of each program is affected by these goals and objectives. For example, Alletto (1979) states that the Arson Pattern Analysis Unit in his jurisdiction:

...should direct most of its efforts towards the types of fire or explosion incidents that the fire investigation function is most capable of preventing and suppressing; and failing this, those incendiary fires or explosion incidents in which the perpetrator can most likely be caught. (Alletto, 1979:4)

The objectives are prioritized with prevention preceding apprehension. Emphasizing "most capable of preventing" and "most likely [to] be caught" seems rational; why pursue less attainable goals? However, depending on the measure used,
phrasing the objectives in this fashion may doom the program to failure or, more likely, result in questionable claims of "success". For example, the most difficult arsons to prevent may be arson-for-profit; a type of arson which would likely cause more damage than arson as vandalism committed by juveniles. If so, concentration on juvenile vandalism arson may reduce the number of arson incidents whereas concentration on arson-for-profit may reduce the dollar value. If arson as vandalism is prevented or suppressed with less difficulty than arson-for-profit, program organizers may claim to have reduced "arson" but a situation may arise where the dollar value of arsons remains high or could actually increase.

Three AIMS programs are outlined below. Where information relating to the requirements of a comprehensive program evaluation was discovered, it has been included. In addition two vital features of the "Hackler alternative" should become apparent; a computerized records linking component and "evaluation" by in-house personnel. That evidence of both "traditional" program evaluation and Hackler's "alternative" appears in the AIMS literature suggests that the call for rigorous program evaluation has been tempered by the demands of practitioners and perhaps the availability of resources.

Phoenix: Arson Prevention and Analysis Unit (APAU)
The APAU in Phoenix, unlike the systems in other cities is reactive in nature. Utilizing information about past fire incidents collected by an assortment of agencies, the Phoenix program collates the information and subjects it to various types of "trend analysis" (Kerlinger and Podantze, 1976) including factor, cluster, and discriminant analysis with the hope of identifying arson prone geographical areas. The "output" from this analysis is distributed to the originating agencies for autonomous decision making purposes. The "output" is also given to the Arson Task Force to be used for "community outreach programs, legislative lobbying and to inform the mass media" (Battelle 1980:203). The use of various types of trend analysis are in effect a type of program evaluation; if the results of the analysis are statistically nonsignificant it is likely that expansion or continuation of the program will be subject to close scrutiny.

The APAU involves the linking of six data files originating with various components of police, fire, insurance, court, and city clerk agencies. Although a "report describing the project's methodology" (FEMA, 1981:9) is being constructed it is not currently available. In one available report (to the funding agency - FEMA) the coordinators of APAU note that:

Since the 1979 inception of the the AIMS project, there has been a dramatic decline in the number of incendiary and suspicious fires, down from 800 in 1979 to 657 for 1980. (as in FEMA, 1981:9).

Without benefit of the methodology report it is difficult to assess the apparent success (a decline of 133 arson incidents)
of the program in its first year of existence. The fact that this decline took place in such a short period of time does, however, raise suspicion given that it takes time for a program to be implemented as well as for the public to become aware of a programs existence. FEMA (1980:5) makes reference to this time element in a review of "Arson Information Reward" programs by noting: "In planning the award program, you should allow at least 3-4 months before assuming that the public is aware of the program...". The decline in arson in Phoenix may have been the outcome of publicity from that city's media campaign, the reward campaign, the APAU project, instrumentation or history (Campbell and Stanley, 1963) or other factors unrelated to the program, but at this time there is insufficient information for an external source to make a judgement. It appears that the evaluative efforts with respect to the Phoenix arson prevention programs are best labelled in-house (publications originate from the fire service) yet the trend analysis features of the program would indicate that university resources (or other form of consultation) are being utilized.

Boston: Arson Early Warning System (AEWS)

In Boston the Arson Early Warning System (AEWS) has a relatively general stated purpose:

...to identify with considerable certainty which
buildings are most prone to arson fires. (Battelle 1980:199)

The manner in which the nominal terms in the objective are operationalized, however, reveals that the objective is much more specialized than indicated:

The A.E.W.S. study selected 78 residential, absentee-owned, multi-unit rental buildings in the Boston area as their sample population. Two additional requirements had to be met by these buildings for inclusion in the sample: (1) they had to have sustained a fire loss of more than $500 between 6/1/78 and 5/31/79, and (2) the fire had to be classified as incendiary, suspicious or a fire that caused abandonment. The 78 burned buildings were matched with a control sample of 78 buildings that had not experienced a fire in the same time period. (Battelle, 1980:199).

It would appear that the AEWS evaluators are subjecting their program to the methodology of social science, although at this time there is insufficient information to make a judgment. One area of concern, for which information is lacking, is the selection of the control group. As Kupersmith (1975:7) notes:

... the degree of correspondence between observed differences and project impact depends upon the validity of the assumptions made in selecting the set of characteristics used to develop the control group.

Further, the stated goal of the Boston program does not conform with the operationalized objective. While this is not intended as major criticism, it does demonstrate the difficulty of aligning goals with actual measures. Will the Boston program allow for information on the "buildings most prone to arson fires" or just absentee landlord multi-unit dwellings which suffer major suspicious fires? Knowledge of this group of arson fires is invaluable but it does not fulfill the stated goal.
Concerned with arson-for-profit, the AEWS researchers hypothesized that the economic circumstances related to the building plus the economic circumstances of the owner were related to the commission of arson-for-profit offences. It had been observed that:

...some arson fires are preceded by unusual events such as a high number of sales of the property, or small earlier fires. Since many of these occurrences are routinely recorded for governmental and public use by local government agencies, it was thought that an Early Warning System could be devised to give prior notice of many building fires. (Abt Associates, 1980:138).

The information collected on the background of the owner - previous fires, criminal record, liens etc. - was used to direct the type of intervention strategy. A combination of "building with no economic stress" but owned by persons with backgrounds causing concern may be subject to further monitoring. A combination of "building with economic stress" and owned by persons with "backgrounds causing concern" were subject to direct intervention in the form of site visits, notification of other agencies, and, where applicable, notification of community organizations (Abt Associates, 1980:139).

Urban Educational Systems (UES), a Boston based private organization, is also active in a Comprehensive Arson Prevention and Enforcement System (CAPES) that assists local neighborhood organizations to research and identify at-risk properties and implement appropriate strategies (FEMA, 1981:15). The results "have proven to be highly successful, with arson fires in three neighborhoods reduced by 38%, while arson fires in the rest of
the city increased by 17\%." (FEMA, 1981:15).

Funding for the Boston program (AEWS) is from a grant of $200,000 made by FEMA. The AEWS is apparently being subjected to in-house evaluation (by the fire service) while the CAPES program is being conducted and evaluated by a private organization (UES).

New Haven: Arson Warning and Prevention System

The "Arson Warning and Prevention System" (AWPS), is based on the theory that intentional burning can be anticipated by identifying variables that properties share in common before arson is committed (Logue, 1980:33). Concentrating solely on buildings at risk (as opposed to buildings and owners in the Boston program) AWPS researchers determined from regression analysis on 67 variables felt to be related to arson that:

... 78 percent of the variance between the suspicious fire group and the control group could be explained by four variables. (Battelle, 1980:189).

The four variables referred to were: tax delinquency, previous structural fires, housing code violations, and claims against the property. Logue (1980:35) notes:

While the presence of any one factor is not definitive the presence of a number of them in combination provides a sufficiently reliable foundation upon which to base the interventions that are the key to the Arson Warning and Prevention Strategy. (Logue, 1980: 35).

Proactive in nature, the AWPS model provides a number of
agencies with information that can be used in a variety of ways to prevent a building from suffering an arson fire. Thus of equal importance to the Process Evaluation component of this program (whether potential targets are "flagged") is the Outcome component, whether arsons in these buildings can be prevented.

"Arson" for AWPS purposes was operationally defined by selecting from reported fires for the past two years a sample of 100 that met the following criteria:

1. "suspicious incendiary, vandalism, reckless burning causing any dollar loss
2. all structural fires in vacant buildings (regardless of loss or cause)
3. a few undetermined cause fires after examination of past fire assigned this cause.

With respect to the last item:

These incidents were reexamined to determine whether the cause of the fire was in fact, suspicious. A limited number of these were included in the list.

Such "early warning systems" are primarily directed at arson-for-profit although additional funding has been received for:

...in-depth research into socio/economic stress levels in New Haven neighborhoods...It is anticipated that this research will provide valuable data relative to potential revenge motivated arson. (New Haven Fire Service, 1981:3).

Presently, if a building is determined to be "at risk" then additional and more complete information is compiled, the buildings are inspected and photographed, and a prevention strategy for that specific building is designed. The first type of preventive effort is in the form of boarding up requests, demolition notices, or assistance in repair loan or grant
applications (New Haven Fire Service, 1980:2). A second type of strategy involves direct owner contact by police and fire officials and/or a Rehabilitation Specialist who discusses avenues available for the owner other than arson.

The first "at risk" file was completed in February of 1980 and resulted in a small sample of 11 buildings. The 11 buildings were not the "homogeneous group of run-down tenements in the city's (slum) section" that was expected (Sauerteig, 1980:48).

The diversity of preventive strategies requires strong cooperation between the agencies involved (legal provisions were made for certain types of information sharing) but the relatively small number of "at-risk" buildings assists in making the program viable.

The funding for this program was from a $97,000 grant from Aetna Life and Casualty Insurance Company, a $10,000 grant from Factory Mutual Engineering System and $20,000 from the U.S.F.A. The New Haven AWPS program is conducted and evaluated in-house (by the fire service). Literature is disseminated from the public relations division of the New Haven fire service.

Summary

Arson administrators who have implemented various arson
programs appear to realize that expenditures must be justified\textsuperscript{14}. As this chapter illustrates, in-house publication of evaluation efforts, however, best resemble "public relations" efforts rather than scholarly inquiry. In this respect, claims that "white-washing" accompanies in-house evaluation are supported. Primarily, this result may be attributed to the absence of an adequate data base and the fear of outside evaluation, a fear instrumental in choosing the in-house route. Fear of outside evaluation is caused by the current orientation of evaluation researchers who insist on proceeding with sophisticated evaluation rather than first guiding practitioners in the development of an adequate data base necessary for sophisticated evaluation. Hackler notes:

In other words I recommend reversing the traditional scientific procedure. Instead of starting with theoretical issues and then deciding on appropriate measures, researchers could assist criminal justice systems count noses and keep records more efficiently. Initially questions would be limited by the data ... but a basis for an ongoing interaction between researchers and program directors might result... (Hackler, 1979:50).

Aside from suggesting that the "new" role of researchers advocated by Hackler (guides rather than Gods) may be of benefit

\textsuperscript{14} Or as Hackler would argue, they feel compelled to "do something" (1979:41-42), a compulsion that "combined with the need to provide evidence of accomplishment can lead to doing harm". While it may be argued that "harm" as used by Hackler primarily refers to bias (pre-selecting samples most likely to result in desired results) or, "harm", in terms of using evaluation to justify termination of innovative programs (1979:40), "harm" may also be defined as the continued expansion of programs that are costly, and of questionable benefit in light of the availability of more viable alternatives.
to arson administrators, an attempt was made to indicate that other criminology studies may be of benefit to arson administrators. A summary of the four programs that were discussed is presented below.

In times of economic restraint it is particularly important to ensure that the "staples" are provided for before allocating funds to other untested areas. Improved training for arson investigators must be considered one such staple. Simply increasing the number of training manuals, films, and lectures available, is not, however, all that is required. An effort must be made to attempt to measure the utility of this "hardware". At present there is no indication of the effects of training (although an increase in quantity and quality has been proclaimed) that illustrate impact (Outcome Evaluation) subsequent to training.

Arson prevention patrols, that allegedly have met with success in certain jurisdictions, are of questionable value in light of criminological studies of "preventive patrol" in general. That arson patrols have met with any success at all may be attributed to an extremely concentrated arson problem and/or the luxury of an almost unlimited budget. The use of preventive patrol in general and Directed Deterrent Patrol in particular has been questioned in recent years; that preventive patrols directed at arson offences are likely to have much impact is also questionable.
Arson prevention media campaigns (as presently constructed) are not considered an attractive "solution". Criminological studies relating to crime prevention media campaigns in general and arson media campaigns in particular tend to bring the efficacy of such programs into question. Further, the failure of most administrators to recognize the effects of instrumentation and statistical regression negates any claim of success.

Arson Information Management Systems may hold the most promise of the arson prevention programs outlined in this chapter. Such systems are attempts (although not necessarily intentionally) to address the key problems associated with program evaluation - they circumvent problems of rapport by utilizing an "in-house" approach and by doing so they provide persons directly involved with arson prevention and control the incentive to classify and collect data with integrity. In addition, by attempting to link all available information, stress is placed on viewing fire-crime from a systems perspective. Those involved in arson control are a part of the "criminal justice system". Knowledge of the role of various components of the system and the effect of changes in one component on another are not well understood; this statement is no less true with respect to the role and effect of the various actors involved in arson control. Attempting to utilize information from the various agencies involved should illuminate the problems faced by each and foster an understanding of the effects of one agencies problems on the entire system. Hackler
notes:

The resolution of such problems is necessary before data collected by the various agencies can be utilized effectively to describe the flow of cases from one agency to another. In addition, the process of resolving these issues helps us to develop a clearer understanding of the operations of our criminal justice system. (Hackler, 1979:50).

If resources are limited and current programs (such as preventive patrols or media campaigns) used by arson administrators do not appear to be making good use of public funds, these administrators may have to look elsewhere for more cost-effective approaches. While funds directed to quantitative and qualitative training improvements or to the development of information systems may be labelled a wise allocation of public funds, it is suggested that arson administrators should also consider seeking assistance from those not solely involved in the prevention and control of arson. That is, a number of important studies have been conducted in recent years, some "crime specific" and other more general in nature, that may be of some assistance to arson administrators in effectively and efficiently allocating the resources available to them. One general area, that has led to a number of crime specific studies, is the management of criminal investigations.

The study of the management of the criminal investigation process is an area of criminology that although in existence for at least the past ten years, is only recently receiving the attention it deserves. Of the arson related literature reviewed in preparation for this thesis only Abt Associates (1980) make
reference to this area. The next two chapters outline the reasons why this research is important to arson administrators as well as pointing to areas where the findings may not be of any value.
VI. THE CRIMINAL INVESTIGATION PROCESS: RAND AND ARSON

In the 1960's and early 1970's studies of police manpower and organization focused on uniformed police officers. In addition, other studies of the police (e.g. attitudes toward the police) also centered around uniformed police (Kelling, 1979:6; in Canada, see Koenig, 1975; Klein, 1978). While literature describing the detective function began to emerge during the 1970's (for eg., Greenberg et al., 1972; Greenwood et al., 1975; Bloch and Weiderman, 1977) studies which emphasized operationally significant quantifiable measures have only recently received scholarly attention (Chappell et al., 1982; Simms, 1982).

Research into the relationship between successful criminal investigations and detective resource allocation tends to revolve around crimes such as break and enter, robbery and assault (Kelling, 1979:16). Arson, when included, is lumped into the general category of "aggravated assault" (see Greenwood et al., 1975:III:166). Nonetheless many of the highlights of these studies, studies that often are conducted under the general heading of the "Management of Criminal Investigations" (MCI), are of practical significance to arson prevention and control managers and some are already reflected in current arson prevention programs.
Background of MCI

The origin of MCI studies is often referred to as the 1966 report of The President's Commission on Law Enforcement and Administration of Justice (Chappell et al., 1982:5; Cawley et al., 1977:v). Yet as noted by Chappell et al. (1982) and Cawley et al. (1977) its recommendations with respect to the need for improvements in the criminal investigation process went unheeded for a number of years.

Factors which account for the reluctance of scholars and police administrators to focus on criminal investigation rather than the patrol function are best understood within a social framework. During the 1960's and early 1970's outright confrontations between the police and the community forced attention upon the patrol level. For example, Shermann (1972), while discussing seven experimental versions of "Team-Policing", points out that each were in response to tensions that current police practices appeared to be accentuating. Experimentation at the patrol level was viewed as the most viable method of improving police services, if not the police image. From the researchers' perspective, analysis of policing at the patrol level offered an ideal field laboratory setting: uniformed patrol was well suited for participant-observation study, the patrolman's time was easily categorized and segmented, and the "mystique" of policing which permeates all levels was not as impenetrable as that found at the detective level (see Cawley et
al., 1977). When such factors are coupled with the immediate problems faced by police administrators in the 1960's and early 1970's it is not difficult to understand why:

...a pattern of manpower research seems to be developing whereby the patrolman tends to be over-analysed while other critical functions and procedures go begging... (as in Cawley et al., 1977:vii).

A shift in the "pattern of manpower research" began to emerge in the early 1970's when police administrators appeared to recognize that lack of knowledge over what their detectives actually do was an "abdication of responsibility" (Bloch and Weidman, 1975:27).

Referred to as the "principal heretic" by Chappell et al. (1982:10), the Rand Corporation in a three volume report on the criminal investigation process (Greenwood et al., 1975) brought into question the mystique surrounding the work of the police detective. The Rand study put into print that which most police administrators and criminal investigators knew but were too embarrassed to admit - a successful police investigation is often determined by the nature and circumstances surrounding an offence rather than by the application of specialist skills (Greenwood, 1975).

Greeted with much suspicion and contempt from the police community, the Rand Study pointed out that enormous amounts of police manpower are wasted through a tendency of reviewing and investigating completely hopeless cases. The majority of the cases that are solved are the direct result of information obtained by the first arriving street-constables, or from
witnesses. While interpreted as a naive view of policing, one based on the "unsubstantiated opinions of researchers who lack insight and understanding of the police investigation function" (Gates and Knowles, 1976:22), the Rand Study was quite simply a strongly worded request to police administrators to re-examine the role and function of their detective squads. It is suggested that arson administrators aligned with the fire service should also heed the request of the Rand researchers. Even if the role of fire service arson investigators is restricted to "cause and origin", administrators must be aware of what it is their personnel do at a fire scene and attempt to ensure that it is done as efficiently and effectively as possible.

**Rand Revisited: Arson**

The Rand study of the criminal investigation process involved the distribution of 300 questionnaires to American jurisdictions with a population in excess of 100,000 and having a police service with 150 or more personnel. Of the 153 departments that responded to the questionnaire, 25 were selected for an on-site follow up, involving interviews and participant observation. The study resulted in twelve findings and nine suggested reforms. The first six findings and their implications for the specific offence of arson will be discussed in the first half of this chapter. The latter six findings have been incorporated in a discussion of the relevance of the Rand
reforms to the investigation of arson as outlined in the second half of this chapter.

Rand: The Findings

The first two findings revolve around standard organizational elements and innovative organizational methods:

Differences in investigative training, staffing, workload, and procedures appear to have no appreciable effect on crime, arrest, or clearance rates.

The method by which police investigators are organized (i.e., team policing, specialists vs. generalists, patrolmen - investigators) cannot be related to variations in crime, arrest and clearance rates." (Greenwood et al., 1975:1:vi)\(^1\).

The word "crime" was later retracted by the researchers involved (Greenwood et al., 1976:64) who conceded that the data analysed only concerned arrest and clearance rates. As the director of the Rand study points out "we have been made aware of instances of imprecise or misinterpretable wordings that we have modified in subsequent writings." (Greenwood et al., 1976:62).

It is not that differences in training, staffing or police methods will have no effect on the criminal investigation process but that attempts to "prove" effectiveness through cross-cultural comparisons of arrest and clearance rates are unlikely to produce any reliable or valid findings. Trying to compare arrest and clearance rates between jurisdictions and

\(^1\)The futility of comparing arson arrest and clearance rates has been demonstrated in earlier chapters of this thesis.
using, for example, improved arson training to explain portions of the variance is unlikely to provide any reliable or valid results. Definitions of fire-crimes, those classified as arson, incendiaryism, or "mischief" (s.387 Criminal Code of Canada), vary substantially across provinces and even within provinces. Combined with variable "clearance" practices, definitional variation negates comparisons of arrest and clearance.

Reference is made to team policing in the second of the Rand findings. It is a concept which may be of importance to arson administrators depending on how it is defined. Team policing, also referred to as Zone policing, may be interpreted as a form of patrol strategy with a number of police personnel assigned responsibility of providing "coverage" for a specified geographical area. Another type of team policing which has been experimented with is the deployment of police officers and social workers, family counselling experts, etc who attend selected types of calls for service as a team (Sherman, 1972)

The City of Calgary police service labels its patrol deployment as Zone policing and in 1980 began experimenting with team policing in the latter sense (social workers attending domestic disputes with a constable). Calgary's arson unit is also labelled a "team" (Lemieux, 1981:20); members of the fire and police service pair up on a full time basis to conduct all aspects of an arson investigation. On occasion the word "team" is also used interchangeably with the words "pair" or "group". Thus a detective team may simply refer to two detectives
assigned investigative responsibility, or it may refer to a number of detectives working with constables as a "team". And finally, it may refer to a team (or group) of detectives assigned investigative responsibility as opposed to individual or "pair" efforts. When the word team is used in this thesis it will be followed by an explanation.

To the organizers of a recent arson seminar in British Columbia the team concept of arson investigation was loosely defined as a coordinated effort between police, fire, prosecutors and insurance personnel. Of the 32 responses to the survey conducted during the above noted arson seminar 27 respondents (84.4%) agreed with the statement that a combined investigative effort relying on police and fire services (as opposed to an investigation conducted solely by the police or solely by the fire service) would be more effective in detecting and apprehending arsonists. It appears that in B.C., however, this will remain speculation since there are no combined full time units (fire and police) that investigate from cause to conviction.

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TABLE X

A team concept (involving firefighters and police officers from start to finish) is the best way to conduct a fire-crime investigation. (O.A.I. Survey)

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</tr>
<tr>
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</table>

Control group experiments with Team Policing \(^3\) in Rochester, New York (Bloch and Bell, 1976), produced evidence that variance in arrest and clearance rates could be explained by organizational methods. Aside from concluding that more (and "better") quality arrests were effected in the Team areas as opposed to the control group areas, improvements in morale and

\(^3\) In the Rochester experiment "Teams" were defined as groups of patrol officers and detectives assigned responsibility for a geographical area.
cooperation between officers and detectives was noticed. The first two Rand findings could be held unimpeached by this study, however, since the Rand study appeared to address "cross-cultural" comparisons while the Rochester experiments involved control groups from the same jurisdiction.

What the first two findings of the Rand study "really" meant will probably continue to stimulate debate for some time. However, as noted by Chappell et al. (1982) the importance of these findings and the Rand study in general, is that they have caused police administrators to take a serious look at the administration of criminal investigations and have led to structured enquiries which may be of assistance in times of scarce resources.

The third and fourth Rand findings state:

Substantially more than half of all serious reported crimes receive no more than superficial attention from investigators."

An investigator's time is largely consumed in reviewing reports, documenting files, and attempting to locate and interview victims on cases that experience shows will not be solved. For cases that are solved (i.e., a suspect is identified), an investigator spends more time in post clearance processing than he does in identifying the perpetrator. (Greenwood et al., 1975:I:vii).

It might appear that number three and four are somewhat contradictory. Three, points to the lack of investigative effort while four points to excessive (albeit futile) investigative effort. The contention is, however, that a major reason for serious crimes receiving superficial attention is the penchant for investigating futile and time consuming cases. As noted
earlier the Rand study did not specifically address arson and although included under the "aggravated assault" category the study does not reveal if arson investigations fell into the "serious reported crimes receiv(ing) no more than superficial attention" category noted in finding number four.

For clarification purposes is may be necessary to place limitations on the concept of "serious crime". Serious crime to the Rand researchers refers to felony offences (the equivalent of indictable offences in Canada) and is all inclusive. It seems reasonable to state that one half of all "serious crimes" receive only superficial attention but if an attempt was made to distinguish degrees of seriousness, it is just as reasonable to assume that a clearer picture would emerge. A house break-in involving the theft of fifty dollars may not receive as much attention as a house break-in involving a much larger sum or violence. Both are "serious" offences but the latter may be considered a "major" offence. "Serious" crime in this chapter, except when used in a quote, will refer to indictable offences and although no attempt has been made to offer a "scale" or "cut off point" for distinguishing between serious and "major" it is suggested that an arson fire damaging a portion of a car, house or business are illustrations of the former while arson fires destroying a school, or other building or resulting in death, are suitable examples of the latter.

With respect to the last half of finding number four it is suggested that the reverse may be true for certain types of
arson investigations - more, or equal time may be spent on identifying the perpetrator than on post clearance processing. Depending on the established or suspected motive, investigators must decide on how to conduct further inquiries. In turn, follow up inquiries may refute or support motive suspicions. For example, if for some reason arson-for-profit is suspected, it may be necessary to conduct an initial investigation which subsumes the steps of a thorough follow up investigation just to establish that a crime has been committed. This step is uncommon in the investigation of other crimes.

The fifth finding of Rand poses an interesting dilemma for the investigation of arson:

The single most important determinant of whether or not a case will be solved is the information the victim supplies to the immediately responding patrol officer. If information that uniquely identifies the perpetrator is not presented at the time the crime is reported, the perpetrator, by and large, will not be subsequently identified.

Studies of police agencies who incorporate this "finding" in formal case screening measures (eg. Rochester N.Y. see Bloch and Bell,1976) and studies of police agencies who rely on the traditional informal process (see Waegel, 1981) both attest to its validity. However, this finding is difficult to relate to

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The Rand detractors were divided in their criticism. Some members of the police community doubted the methodology, findings and reforms, while others felt Rand had been guilty of "overkill"; that is they took common sense elements known all too well by the police and wished to be credited with a major discovery (see Greenwood, 1979:8).
arson since in most cases there is no equivalent to "the immediately responding patrol officer". Unless arson investigators are dispatched to the scene of a fire in progress it is unlikely that witnesses will be contacted until fire suppression activities have been put into effect.

With the exception of arson for revenge, the opportunity for "suspect information" is limited. If fortunate enough to attend a fire scene which will eventually be confirmed as the result of a fire-crime, the arson investigators, who in effect are assuming the role of Rand's "initially responding patrol officer", are faced with a dilemma. What should take priority? An initial fire scene investigation which may be of assistance in formulating the questions asked to victims and witnesses? Or, considering that witnesses are more likely to provide information while consumed in the excitement of a tragedy, should investigators use a "shotgun" approach to their questioning and hope vital points are covered? At this stage of an arson investigation and continuing through each and every subsequent stage, investigators must sift through the options:

...bearing in mind that failure in one option may result in all other options becoming contaminated (e.g. a suspect may be alerted). (Chappell et al., 1981:6).

Clearly the choice of options will vary in quantity and complexity with the circumstances of each incident. The promise of the direction of research suggested by Chappell et al. (1982) and Kelling (1979) - research intended to map the broad range of criminal investigations is the assistance their forthcoming
research results may provide to the formulation of what Souryal (1974:449) refers to as:

...a 'finding mechanism' capable of directing the individual detective in the deployment of the appropriate techniques at the appropriate time in the appropriate order.

The sixth finding is of considerable importance to arson investigation:

Of those cases that are ultimately cleared but in which the perpetrator is not identifiable at the time of the initial police incident report, almost all are cleared as a result of routine police procedures.

The Rand researchers attempt to distinguish between routine investigative work and "special action". Routine is defined somewhat loosely through the use of examples; conducting fingerprint searches, displaying mug shots or linking a person caught with stolen property to the scene of an offence. Special action is defined as "All cases requiring more than procedural investigative skill". Although unable to locate any empirical evidence, it is suggested that in the majority of arson incidents the perpetrator is not identifiable at the time of the "initial police incident report" or its equivalent. If these cases are cleared through "routine police procedures" the question becomes... What are the routine police procedures most relevant to the solution of arson crimes? In turn... What types of "special action" in arson investigations have met with success?

An example of special action provided by Greenwood et al. (1975) revolves around the dissemination of suspect information
to patrol officers, one of whom observes a suspect on the street and effects an arrest. While some may consider this unsuitable to illustrate "special" action the example is valuable since it demonstrates the importance of communication between investigators and street level constables, communication that may vary with the degree of police involvement in the investigation of arson.

The tone of the Rand study, and the resulting findings briefly outlined above, is illustrated by its interpretation of words and phrases such as "serious" crime and "special action". The tone, also reflected in their reform suggestions, is one of simple common sense. If police (and arson administrators) are faced with budget constraints which necessitate re-organization of criminal investigation resources, focus must be on the less sensational "serious crimes" and "special actions" that frequently meet with successful outcomes. While investigators must be prepared to deal with "major" arson offences, it may not be beneficial to concentrate training and organization on this segment, as they are likely to occur less frequently.

Rand: The Reforms

The Rand study concluded with a number of reform recommendations many of which have significance to the management of arson investigations. Reform number one recommended:
"Reduction of follow-up investigations on all cases except those involving the most serious crimes."

Recognizing that there are certain offences that will always require as thorough an investigation as possible, this "reform" is directed at the large number of follow-up investigations that experience shows will never be solved. The investigation of certain criminal offences would not proceed beyond the information obtained by the initially responding patrol officer, or in some cases, a report compiled over the phone by persons who man the police phone lines. Application to arson may spark fierce debate since each fire incident, no matter how minor, poses a threat to community safety. However, and without benefit of empirical backing, it is suggested that in the majority of fires reported, fire service personnel attend the scene. It is difficult to imagine a fire report that could or should be completed "over the phone". The result, by necessity, is the collection of a wide variety of fire reports - the need is to determine which should receive follow up investigation with arson in mind. Should all fires be thoroughly investigated by arson investigators, each fence, garage, garbage or kitchen fire?

Most fire services have separate general fire investigators, either as separate units or responsibility is assigned to the local assistant to the Fire Commissioner - often the Fire Chief of a municipality. If "specialists" were created,------------------

For example, the theft of a car battery may be reported over the phone just as thoroughly as by dispatching police officers to the scene to collect the information.
it is suggested that these persons would have more than enough expertise to assume the role of the generalist investigator.

Reform number one has provided the impetus for continued research in solvability factors and formal case screening, much of which is based on the Stanford Research Institute (S.R.I) Burglary Investigation Decision Model developed by Greenberg et al. (1972). The S.R.I. model utilizes statistically weighted factors related to past successful investigations and assists in determining the likelihood of success for future criminal investigations.

Although not a result of reform number one, nor modelled after the S.R.I. solvability index, a number of American cities have attempted to reduce arson investigator workloads through the use of unweighted (statistically) and informal selection procedures (Abt Associate, 1980). Five arson case selection policies will be explained in the next chapter.

The second reform read:

Assignments of generalist investigators, who would handle obvious leads in routine cases, to local operations commanders.

The Rand researchers note that this reform is based on the premise that:

...the vast majority of crimes required no specialized skills over and above what a well-trained police officer would be expected to possess in handling a felony complaint. (Greenwood et al., 1976:24).

It has been suggested, however, that the investigation of fire-crime is more difficult than the investigation of other
crimes. With arson the first step is proving an offence occurred and then, a case must be built from the debris. A total of 16 (51.6%) of the respondents to the OAI survey agreed with the statement that arson investigation is different. The question and results appear in TABLE XI.

TABLE XI

The investigation of arson is totally different from the investigation of any other crime.
(O.A.I. Survey)

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If the frequency of arson in a jurisdiction drains the resource capabilities of arson investigation specialists then assignment of "routine cases" to an equivalent of the generalist
investigator such as the fire investigation division in the fire service, a generalist investigator within the police service, or a combination, may be of benefit.

Reform number three called for the:

Establishment of a Major Offenders Unit to investigate serious offences.

Such a unit would investigate a few unsolved serious crimes "because of their importance to society" and would allow investigators to develop their own source of leads (Greenwood et al., 1975:I:x).

The fourth reform called for:

Assignment of serious offence investigations to closely supervised teams, rather than to individual investigators.

Primarily designed to return control of investigations to senior administrators this reform removes the element of discretionary effort from the individual detective and places it back in the hands of management. "Team" refers to a group of detectives (six is suggested) each assigned responsibility for various, or all, aspects of an investigation. Although it is unlikely that many jurisdictions in Canada would have enough arson investigators on staff to form a "team", the thrust of this reform - to assure investigative control rests with management - is desirable. However, if the word team is operationalized to include both police and fire service personnel a problem arises: who has control? Is there partial control by each and/or ultimate responsibility to one?
Based on their findings that many police departments collect more physical evidence than they are capable of processing the Rand researchers make a general request in their fifth reform:

**Strengthening of evidence processing capabilities.**

Physical evidence can play a major role in arson investigation, however, fingerprint evidence, the primary concern of the Rand researchers, is not necessarily the prime concern of arson investigators. The destructive capability of fire often precludes the search for fingerprints and in certain types of arson such evidence serves little purpose since the victim is also the suspect. On a more optimistic note Hurteau (1977:30) suggests that fingerprint evidence may be of value "by demonstrating the absence of fingerprints other than those of the victim/suspect on items such as gas cans etc. It is likely, however, that such optimism could easily be shattered by most laypersons, let alone an experienced counsel

Concerning the processing of other types of physical evidence (eg. testing for accelerants or eliminating accidental causes) 25 (89.3%) of the respondents to the OAI survey conducted for this thesis, indicated that they did not feel the processing of evidence in British Columbia crime labs presented any problems whatsoever. The remaining 10.7% stated there were problems and two of the three identified the problems. Time

For example the presence of one smudged and unidentifiable print.
delays were cited as a problem by both. There were four missing values.

TABLE XII
Do you perceive any problems in your dealings with laboratories?
(O.A.I. Survey)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>89.3</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

At the risk of being accused of trying to "find" a problem where one does not exist, it is difficult to evaluate the responses to the OAI survey questions relating to the processing of evidence in light of laboratory problems outlined by Farmer (1981) and the Illinois Investigating Commission (1978). Both authors point to serious discrepancies in the evaluation of "evidence" submitted to numerous laboratories across the United States⁷. Perhaps the problem does not exist in Canada, it is an area, however, that has not been empirically studied.

⁷Experiments are described by Farmer (1981) and the Illinois Investigating Committee (1978) in which evidence samples from the same source were sent to different laboratories resulting in substantially different analysis.
A sixth reform suggested was:

Increasing the use of information processing systems in lieu of investigators.

The development of Arson Information Management Systems (AIMS) described in the previous chapter illustrates that those concerned with arson investigation and control have been actively involved in utilizing computerized information processing systems since 1978. Although suggested by Rand, and a central component of many American arson programs, the use of information processing systems does not appear to be a central issue to researchers involved in the management of criminal investigations at this time. Based on a review of the content and bibliographies of the AIMS literature it appears unlikely that progress was a result of the Rand recommendations nor does it seem likely that the authors of this literature are aware of the Rand study or the MCI literature. In all likelihood the reverse is also probably true, MCI researchers do not appear to be aware of the development of processing systems in the area of arson control.

The 7th reform called for:

Selective and judicious use of strike forces.

Based on resource requirements and expertise, strike forces, where they are required, would be a police unit. Not of any

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8 A review of MCI literature and bibliographies reveals that at present, management information systems such as PROMIS (Prosecutors), COMIS (Corrections), PIMS and PIES (Police), or AIMS (Arson) are seldom mentioned.
particular relevance for arson administrators it suffices to state that where strike forces exist they could assist arson investigations when surveillance of elusive suspects is warranted.

Reform number 8 read:

Placement of post-arrest investigations under the authority of prosecutors.

Based on two of the findings of their research Greenwood et al. (1975:I.ix) note that:

In relatively few departments do investigators consistently and thoroughly document the key evidentiary facts that reasonably assure that the prosecutor can obtain a conviction on the most serious applicable charges.

Thoroughness is defined as the accurate and complete flow of information culminating in conviction and:

...is used to designate investigative completeness; ie, how much of the information that the prosecutor deems desirable is provided in written documentation given him by the police. (Petersilia, 1975:II:23).

Noting that the "orientation" of the police - to collect evidence establishing reasonable cause for arrest - is in conflict with the "orientation of the prosecutor - to establish proof beyond a reasonable doubt, Greenwood et al. (1975:I:xiii) suggest that investigation subsequent to arrest should be under the direction of a prosecutor. However, with respect to arson, it may be necessary to consider the "orientation" of agencies other than the police. Thorough and complete investigation may well result from supervision from the prosecutor's office but in
provinces such as British Columbia this task may be more than a crown counsel office may be willing to accept. It may be safe to state that the police and fire services are the main participants in arson investigation, however, depending on the jurisdiction in which the fire occurs there are numerous other agencies which perform various aspects of investigation either in conjunction with police and fire services or autonomously. The OAI survey resulted in the identification of nine such agencies in the Province of British Columbia:

1. Municipal police services (non-RCMP)
2. RCMP Municipal police services
3. Municipal fire services
4. British Columbia Hydro Fire Prevention Specialists
5. Provincial Fire Commissioner fire investigators
6. Coast Guard fire investigators
7. Department of National Defence fire investigators
8. Insurance Crime Prevention Bureaux

While it is virtually impossible for all to become involved in an arson investigation it is not uncommon for one police service one fire service, the Fire Commissioners Office, the ICPB, and an insurance adjustor to simultaneously conduct interviews, collect evidence and submit reports on the same fire. If a thorough arson investigation requires the efforts of any number of the agencies in the above list it is difficult to imagine the type of legislation that would be required to give authority to prosecutors for post-arrest investigations. This reform, suggested specifically with the police in mind, may be difficult to implement for the crime of arson and it is likely that the direction of post arrest investigations will continue through
informal cooperative efforts between all agencies involved working within the legal and confidentiality restraints peculiar to each agency.

Regarding the police there is no incentive (according to Greenwood et al., 1975) to conduct thorough investigations from the prosecutor's perspective. After effecting an arrest, police are "reluctant to expend further investigative efforts to strengthen the case." (Greenwood et al., Ibid.). Through continued experience the "policy that post-arrest investigation should seek to demonstrate" (Greenwood et al., 1975 I:xiii) would be developed. At present, however, the number of arson investigations that actually go to trial are likely to be spread thinly throughout the courts of a province. Hence, the opportunity to develop familiarity with arson prosecutions is limited. In the Province of British Columbia, crown counsel knowledge of arson prosecution (or investigation) has been described by a B.C. Crown Counsel as "miniscule" (Morrison, 1982). In a similar vein the most notable Rand detractors, Gates and Knowles (1976) have expressed doubt over the general expertise of prosecutors with respect to post-arrest investigations.

The final reform recommendation suggested by the Rand study was:

Initiation of programs designed to impress on the citizen the crucial role he or she played in crime

It should be noted that Morrison (1982) expressed a strong desire to improve this situation.

141
Ironically, "fear" of the last reform has played a major role in the creation and maintenance of the detective "mystique". For reasons of self esteem, belief in the deterrent effect of their omniscient guise, fear of assisting criminals, or concern over job security, detectives and police officers in general, are not keen to divulge the "methods" of their trade. It is suggested that similar factors exist in fire investigation and arson investigation units. In addition, depending on the frequency of "victim" initiated arson fires the following quote from the Rand study, points to a major problem in the investigation of arson:

Crime victims in general strongly desire to be notified officially as to whether or not the police have "solved" their case, and what progress has been made towards convicting the suspect after his arrest. (Greenwood et al., Ibid).

With respect to the final reform suggestion the Rand researchers suggest:

Specifically, police departments should widely disseminate the findings uncovered by this study. The realistic picture of how crimes are solved will help eliminate the public's distorted stereotype image of detectives and will impress on them the importance of their cooperation with police in order to solve crimes. (Greenwood et al., 1975:1:xiii).

On the other hand considering that we simply "do not know if the public has a distorted stereotype image of detectives" (Kelling, 1979:6) dissemination of the realities of policing may only serve to increase the boldness of certain offenders while at the same time contributing to the despair of a population which often borders on paranoia with regard to crime.
VII. MANAGING CRIMINAL INVESTIGATIONS: AFTER RAND

Of the series of "Managing Criminal Investigation" reports which followed Rand, the general theme is described by Bloch and Weidman:

[the theme] is that the entire police department contributes to the success of criminal investigations. While skilled detectives are often essential, there are many things police managers - from first line supervisors to the chief - can do to improve investigative success. (Bloch and Weidman, 1977:4))

A number of the issues raised in the preceding overview of the development of M.C.I. literature have been the subject of research in recent years. Many are of special significance to arson investigation administrators; whether or not they will involve input from the entire police department depends on organizational differences. It may be suitable, or necessary to involve input from all agencies with an interest in arson prevention and control, however this chapter is limited to the input from police and fire services.

Three issues (which should be of concern to arson administrators) are elaborated in this chapter:

1. The use of formal case screening and early case closure,


3. The debate over reliance on the generalist criminal investigator as opposed to the specialist criminal investigator.

The first has direct application to the crime of arson, the
second is important for the issues it raises, while the third warrants particular attention from both arson investigators and arson investigation managers, especially in jurisdictions where the fire service role in arson investigation has been emphasized.

Case Screening

The general aim of case screening is to maximize the effectiveness of investigative and uniformed personnel:

...it is a mechanism that will facilitate making a decision concerning the continuation of an investigation based upon the existence of sufficient solvability factors obtained at the initial investigation. (Cawley et al., 1977:37).

Case screening is not a new concept but attempts to incorporate statistically weighted solvability factors are. The various forms of case screening may be classified as:

i)Formal case screening (non statistical),
ii)Formal case screening (statistical) and,
iii)Non screening.

Police departments that utilize formal case screening were defined by Eck (1979) in the Burglary Investigation Decision Model Replication (BIDMOR) as those meeting four criteria:

1. Decisions to investigate burglary cases were based on incident information contained in the original incident report.

2. Decisions were made by a single investigative supervisor, who used either personal experience or a series of written characteristics ("solvability factors" or "seriousness weights") as the basis for decisionmaking.
3. Supervisors making these decisions did so under the explicit direction of other supervisors and in accordance with department policy.

4. Decisions to screen out cases meant that such cases would not be assigned for investigation. A decision to screen in a case resulted in the case being assigned to be investigated. (Eck, 1979:13).

Formal case screening (statistically weighted) as defined by Eck (1979) is a crime specific and statistically derived version of the criteria outlined above (Eck, 1979:5).

Non screening, as the name denotes, refers to a policy of total assignment of cases. All cases are assigned to investigators who use their personal judgement to rank and pursue investigations (Eck, 1979:14). Traditionally, criminal investigators select cases based on intuition and personal experience - the non screening model. While such procedures may be adequate it is more appropriate and beneficial to have control of decision making in the hands of management.

Often equated with the concept of discretion, case screening would provide more equitable policing (Grant, 1980; Waegel, 1981). Equitable in this sense refers to the distribution of police services and attention to all races and social classes, factors which Waegel (1981) lists second only to "suspect information provided" as key factors in the detective's decision to close or continue a case. Reasons for race and social class being used as criteria upon which to base the decision to close or continue a case are numerous, however, the most predominant is a belief developed through past experiences of the police officer that certain "types" of people are less likely to appear
in court or produce reliable testimony (Waegel, 1981).
Petersilia (1976:5) also acknowledges the effect of a victims or
defendants social characteristics (eg. drug and alcohol abuse)
"on several aspects of police and court processing." While these
may be questionable criteria upon which to process an incident
through the "system", the question remains: if a victim is
unlikely to appear in court, is it desirable to increase the
workload of the criminal justice system by removing this element
of discretion from the criminal investigator? Case screening
devices will assist in selecting cases involving victims of
"questionable status" which are likely of successful conclusion
while at the same time establishing formal policy providing
(assuming it is adhered to) equitable distribution of
investigative effort to all cases and all victims.

Of the arson literature reviewed, only the Abt Associates
(1980) discuss and relate recent experiments in case screening
to the specific crime of arson. Literature describing how arson
cases are screened in Canada is non-existant.

With respect to other categories of crime, screening is
used to select "hopeless" cases and discard them, allowing cases
with higher solvability to be thoroughly investigated. In
essence the "universe" of cases is the total number of crimes
which come to the attention of the police. Those that pass
through the dispatch stage (in effect an informal screening
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This is hardly surprising given the date of the Abt Associates
report (ie; most literature cited predated or was published in
the same time frame as the bulk of M.C.I. literature).
process) and are eventually recorded on paper are a subset of all crimes known to the police. The desired subset is one which contains cases in which further investigation is likely to prove fruitful. With arson the same strategy applies but the process involves an additional step; and that is the selection of a subset of fire-crimes from the universe of fires.

The fire service supervisor (at each fire scene) is usually responsible for the decision to call upon the services of the arson investigation unit (where one exists). Whether part of a specific arson unit or as a member of the regular detective division the police, in most cases, only become involved at the request of a member of the fire service. While the criteria upon which such request decisions are made is unknown, it is unlikely that "solvability" is a factor.

Abt Associates (1980:37) list the criteria upon which cases are selected for arson investigation in five American cities. Four of the cities list very general criteria, such as "all fires", "all fires involving severe financial loss, injury, or death" or "all fires deemed suspicious". The City of Seattle lists "all fires causing damage in excess of 1000 dollars". In most cases the criteria upon which arson investigators are called to the scene of a fire are based on overwhelming caution or unknown visceral judgements.

In the Province of British Columbia, the Fire Services Act stipulates that "the Fire Commissioner must submit a full report on all fires occurring in the Province of British Columbia and
may appoint local assistants to the fire commissioner to perform this function". In theory, fires which are deemed to have been criminal in nature are to be brought to the attention of the Provincial Fire Commissioner, and, through him, the Attorney General of the province, is given responsibility for further investigation as a police matter.

As with other crimes, the investigators of arson may arrive shortly after the offence has been discovered or they may review initial reports and then decide on attendance. The City of Seattle is one of the few that relies on a "dollar value" system as the basis for deciding on investigation by the arson unit. In 1975 the Seattle arson investigation unit decided they had the resources to thoroughly investigate roughly 450 fires per year. A review of fire data for one year (1974) revealed that there were 438 fires out of a total of 1200 that caused damage in excess of one thousand dollars; therefore a dollar value of one thousand was used. This decision was not based on any attempt to identify solvability factors but instead was based on expediency. It foreshadows what Turner (1978) refers to as "no-fault" victimization through case screening. Although not suggesting that persons consciously ignore preventive efforts (eg. defensive driving or simply locking all doors) Turner argues that "no fault" concepts undermine the incentive citizens have to take as many precautions as possible. On the other hand, 

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2 In a review of the Rand Study on the criminal investigation process, Turner likens case screening to "no-fault" clauses common in some motor vehicle insurances policies.
a different concern has been expressed over the use of formal case selection criteria:

...the biggest concern over early case closing procedures is the reaction of citizens when they find out their cases are not being investigated; but so far experience indicates that most citizens accept a realistic appraisal of the situation. (Cawley et al., 1977:5).

Although civilian protestations must be considered there is another issue, one which tears at the heart of the M.C.I. literature, which also must be addressed. How does one resolve the paradox created by M.C.I. stress on response time and witness value (Greenwood et al., 1975:1:vii) with the unique requirement placed on arson investigators to first establish that the fire they are investigating is in fact an arson fire? The problem does not exist if resources allow members of the arson unit to respond to and investigate all fires, but such activity is precisely that which case screening was developed to avoid. A possible solution to this conflict is to divide case screening into two parts. First, cases should be screened based on any apparent arson indicators plus trends (discussed below) and then by "solvability" factors.

As with other criminal investigations, fire investigators proceed with their investigations based on personal predilections and with little supervisory control. If the process of successful fire investigations was formalized (eg.

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\[3\]

One of the most important components of solvability indices as outlined by Eck (1981) is the time which has elapsed since the incident occurred.
reports must be filled out to indicate the presence or absence of typical fire cause indicators) fire cause determination in general may become more accurate. Such suggestions would probably be met with considerable apprehension by fire and arson administrators in British Columbia. Presently, there is no lack of fire report forms and the volumes of instructions which accompany these reports (in the Province of British Columbia the fire reporting system and forms were revised, effective January 1, 1982). However, even the most thoroughly completed forms would not allow administrators to accurately answer questions such as... What did your investigators do at that particular fire? Did they actually check the electrical wiring for signs of "beading"? Was the floor scraped and hosed for visual examination of "spalling"? What were the names and addresses of all persons interviewed?

In addition to the requirement to "check off" established fire cause factors, screening based on trends would assist general fire scene investigators in their decision to request the attendance of a special arson investigation unit. If a greater degree of accuracy in fire cause determination results, or if administrators are satisfied with the accuracy of current fire determination and subsequent arson investigation, then statistically weighted case screening devices could be developed.

Traditionally arson investigators "take over" the investigation on request. If they discover during the course of
their investigation that certain common factors are apparent at fire scenes they may request the initially responding fire investigators to note the presence or absence of such peculiarities at future fires. This first phase of case screening would incorporate both arson recognition factors and preliminary "solvability" factors. This process should involve the simple listing on the required reports of as many as possible standard arson indicators. The important thing is that the information is in fact recorded formally, and not in a notebook inaccessible to administrators.

As noted by the Abt Associates:

There is obviously a need to establish formal criteria which will maximize the probability that a case selected will in fact turn out to be arson. (Abt Associates, 1980:69).

Improving the "referral system" so that cases reviewed by arson investigators are likely to be arson fires must be the first step in any attempt to increase the effectiveness of arson detection. In addition more accurate arson determination should be cyclical - the more accurate the determination the better the chance of choosing likely "solvability" factors suitable for statistically weighting. Formal case screening (non statistical) must precede formal statistical screening. The developers of the S.R.I. burglary model had the groundwork established which enabled them to construct an index. It is suggested that this is not the case for arson. If arson administrators were to formally screen cases, the solvability factors could, eventually, be validated (or repudiated).
The use of solvability factors applied to criminal investigations other than arson have met with considerable success. Solvability indices have been developed for robbery, although the most extensively tested model relates to the investigation of break and enter offences (Eck, 1979:4-6). Solvability factors serve a number of functions. First they assist the investigator in what to look for, and second, they assist in determining how much weight (statistically) to give to different factors in terms of the positive effect these factors have had in previous incidents. It is suggested that the core features of such indices could be adopted for different types of arson, with factors peculiar to each type being added on the basis of past standard and jurisdictionally sensitive successes.

A very real administrative dilemma arises from the calculating expediency of solvability indices. The emphasis appears to be on devoting attention to the "easier" cases, allowing the more cunning offenders to continue unimpeded, in fact uninvestigated. One should recall, however, that the Rand researchers suggested the creation of a Major Offenders Unit which would devote effort to serious offences for which there appear to be no "leads" (Greenwood et al., 1975:1: ). While use of such units would ease this particular problem, case selection based solely on expediency and solvability may cause other problems.

Consider the Seattle example discussed earlier (chapter
II). The decision to use one thousand dollars\textsuperscript{4} as a "cut-off" point may be inappropriate for an area experiencing a rash of vandalism arsons. Assuming that vandalism-arson is impulsive (in comparison to the planning which precedes arson-for-profit) and usually involves an attack on the exterior of a structure, then a rash of vandalism arsons may continue unchecked; they would be noticed sooner, suppressed faster and less likely exceed the thousand dollar selection criteria. While it may appear that the last statement is based on shaky assumptions, scrutinizing the Seattle example (see pages 32,33 chapter 2) provides supportive evidence. Seattle, apparently suffering a large number of juvenile vandalism fires, inadvertently ignored these fires in their investigative efforts. Hence, they were made to "disappear". From a purely cost-benefit point of view ignoring vandalism-fires (which are as difficult to "solve" as other forms of vandalism) may be acceptable. But, is it desirable to place vandalism-fires into the same category as vandalism committed with a spray can, rocks, or a crowbar?

\textsuperscript{4} It should be pointed out that the one thousand dollar figure was chosen in Seattle in 1975 and reflects the value of the American dollar at that time.
Mapping and Interrogation

While much of the M.C.I. literature was aimed at "de-mystifying" detective work thereby improving criminal investigation resource allocation, the possibility of the detective function falling within the realm of science was all but ignored. In effect there was a tendency to throw the baby out with the bath water; detective work was appraised as routine, mundane paper shuffling - successful investigations being determined by the circumstances of the offence rather than the skill of the detective. More recently, however, researchers have demonstrated a desire to map the investigation process and construct scientific paradigms (Kelling, 1979; Chappell, 1982; Simms, 1982). Rather than being constrained by the philosophy of the following quote...

success is predicated on the assumption that the criminal has made a mistake...From this point of view the investigation may be described rather accurately as being a process of 'wishful thinking'. (Quoted in Cawley and Wasserman et al., 1977:78)

Kelling (1979), Chappell (1981) and Sims (1982) suggest that investigators proceed through a case by constructing and testing hypotheses, hypotheses designed to reduce investigative error.

Criminal offences, as varied as they may appear to be, have been recognized as exhibiting a finite number of investigative approaches which afford the best opportunity for successful closure; closure which results in a case being cleared by charge, cleared otherwise, or classified as unfounded (Waegel,
The ability to recognize what "approach" is most likely to be successful in conducting an investigation is developed through experience and interaction with peers. The difference between an excellent detective and an average detective may well be attributed to the degree of luck associated with a "hit and miss" strategy (Goldstein 1977:55) or "chance events" (Greenwood, 1970); but it is just as likely due to the successful development of "recipes" acquired over the course of a detective's police career. Thus as Waegel (1981:264) notes:

The corresponding implication for research is that conventional research strategies focusing on decision making variations between individuals and between functionally similar organizations have severe limitations. A more fruitful approach for studying processing outcomes takes as its focus the shared categorization schemes used by members in organizing their day to day activities.

In effect Waegel (1981) is calling for the application of micro-analysis to processing outcomes, a plea which is not at odds with the direction suggested by Chappell (1981). Applying a mapping strategy to many areas of the criminal investigation process should be invaluable to police and arson administrators. One important area, especially for arson investigators, is interrogation.

Interrogation (formal and systematic questioning) conducted properly is often the only method of discovering the truth of a situation. Senior level arson investigation administrators are quick to point to arson as one of the most difficult crimes to solve due to the typical lack of witnesses and the abundance of
uncooperative "victims". Thus, for fire-crime investigators, use of systematic and formal questioning to establish the truth of a situation cannot be overestimated.

Although the ultimate goal of any criminal investigation is to discover the truth of a situation and thereby clear or charge a suspect with the offence in question, there is also a secondary goal of clearing by charge or otherwise, all offences which the suspect has ever committed. Both are in effect Ideal Types (Weberian) which, although attainable in theory, are limited in practice by such factors as legal constraints, time, budget, communication (between police forces) and the ability of the accused to remember all of the offences he has committed.5

Past M.C.I. literature questioned the tendency of criminal investigators to spend large amounts of time trying to match one offender or a group of offenders to various crimes. For example, in one of his earlier studies, Greenwood (1970), noted:

The dilemma is that the small gain to society from substantial multiple clearances, after a suspect has been arrested, does not appear to justify the considerable effort which may be required of the detectives concerned. (Greenwood, 1970:17).

Expressing a distaste for the use of official statistics as a means of comparison, Greenwood attempts to explain the variance in clearances per arrest between different jurisdictions in a study conducted in New York City. He notes:

It is most unlikely that the wide variance in these

5 On occasion, accused persons who confess to large numbers of offences end their 'true confessions' with statements such as "There may be others, I simply can't remember." Renoud, 1981).
ratios can be explained by differences among the population or police tactics of individual precincts or by simple chance variation. A more likely explanation is that individual commanders define clearances differently. (Greenwood, 1970:18).

Although not wishing to defend the use of clearance and arrest rates as measures of program success, it should be noted that the consequences of Greenwoods' statement are just as far reaching if he is wrong as they are if he is right. That is, what if the fact that one precinct in his study clears an average of twenty offences for each arrest compared to an average of five offences per arrest in another precinct IS due to "police tactics"? If the crime of arson averages a clearance rate of 20% (a purely fictitious figure) should it be assumed that the remaining 80% represents the number of arsonists freely roaming the streets or would it be more realistic to suggest that a certain portion of the offences in that 80% figure represent the failure of criminal investigators to match each arrested offender with the number of crimes for which he is truly responsible? Would it be a "small gain to society" to devote more attention to the possibility of multiple clearances?

In a few police jurisdictions matching only one crime with one suspect is considered, by peers, to be poor police work. In Calgary and Toronto, for example, there is tacit requirement for all arrested persons charged with a criminal offence (more specifically break and enter offences) to be interviewed with respect to other offences. Recognizing that peer pressure to produce multiple clearances through a matching process has been considered a questionable practice (Skolnick, 1966), there is a
definite need to ensure the critics of this "philosophy" that it is operationalized with integrity. As with case screening, a possible solution is to have decision making placed in the lap of administrators. The investigator must prove, not just to himself, but on paper and to his superiors that the person in question is indeed responsible for a series of offences. Just as solvability factors allow for a higher probability of case success, mapping of the complete interrogation process could assist not only the decision to proceed with, but also the success of, an interrogation.

Mapping the entire criminal investigation process to encompass all facets of investigation has been suggested by Kelling (1979) and Chappell (1982). Regarding arson investigation, an attempt has been made to "map" strategies. Condon (1981) outlines a number of possible combinations and suggests the sequence of questions for the investigation of arson-for-profit. Although using different terminology, Condon points out the need to minimize "investigative error" and enhance "offender error" as discussed by Chappell et al. (1981). Given the difficulty associated with establishing the events resulting in an arson fire, and considering that in certain jurisdictions, police personnel are not involved in different phases of the investigation, structured inquiries into the interrogation process could be of invaluable assistance to arson investigation administrators. Interrogation, the interviewing of witnesses, and criminal investigation in general is very much
what Souryal (1974) describes as "Scart"...science and art. Presently, the acquisition of interrogation skills is dependent on psychology oriented police training courses and the good fortune of a "new investigator" to be paired with an experienced partner who not only excels in his trade but is also able to convey his skills to other persons.

The Generalist-Specialist Debate

The third issue explored in the M.C.I. literature that has been chosen for review is the generalist-specialist investigator issue. This issue does not imply a phasing out of specialized detective units and in fact has every indication of strengthening the status of such units. Certain criminal offences occur with a frequency considerably higher than other offences. In discussing the Rand study, Engstad (1978:245) points out that:

...certain patrol officers whom they call generalist investigators could be trained to handle (certain criminal offences) in such a way that arrests are legally proper. (Parentheses not in original)

"Certain criminal offences" referred to were the more frequent property offences such as theft and break and enter. Arson offences, although equalling certain specific crime categories in terms of dollar loss, appear to occur with less frequency than a number of other types of crime as TABLE XIII illustrates. The data presented in TABLE XIII tends to bring into question the need for assignment of arson cases to some equivalent of the
If cases are widely distributed among "general" criminal investigators, it appears that the "familiarity" with arson investigation would be unlikely to develop. Allowing specialized units to investigate certain offences while at the same time giving police constables responsibility for other types of offences allows both groups to "convert investigative tasks into routine action and will increase the number of solved crimes." (Engstad, 1978:245). Utilization of specialists appears to be urged for the investigation of homicide, rape or robbery, crimes which by their nature are most likely to be solved. The
apparent paradox of assigning specialists to crimes which are likely to be solved and generalists to crimes which are less likely to be solved is explained by the "value" society attaches to the successful conviction of murder, rape and robbery offenders. Specialists are needed to ensure that offenders are not "set free" after a court trial due to police impropriety. The trial process for serious criminal offences is more intense than for lesser offences (see for e.g. Horne, 1981).

The Rand study pointed out that:

...with current patterns, most investigators rarely see these highly serious cases. Therefore when they arise, the investigators are frequently ill equipped to cope with them and are unduly distracted by the burden of paper work on their routine cases. (Greenwood et al., 1975:I:xi).

The same reasoning applies to arson investigators. The investigation of a devastating arson fire expected to result in an indictable charge and which could involve days of investigation just to establish cause, must suffer from the distractions of other caseload activities and the amount of exposure the investigator has had with other more serious arson fires.

The use of specialists is not without disadvantages, a number of which are outlined by Bloch and Wiederman (1977:22). For example, if the decision is made to establish a special investigation unit will these investigators interact with other criminal investigators? If there is a lack of interaction will the arson specialists be aware of possible links between their suspects and other offences? That is, while some offenders may
be true "first time" offenders involved in the commission of one crime what of those who have committed other similar, and other different, offences? With respect to juveniles, for example, it has been noted that:

There is practically no evidence to support a hypothesis of the existence of offence specialization among juvenile delinquents. (Wolfgang et al., 1972:244-245).

Would the criminal justice system suffer from the creation of a specialist unit, especially one which may be physically removed from other criminal investigators? If a special investigative unit (arson) is established what would be the communication, cooperation, and coordination problems when such units are physically located in police offices?...fire offices? More importantly, who should these specialists be?

In the next chapter problems relating to the use of, and formulation of, specialized arson investigation units in Canada will be addressed. Many of the issues are closely related to the development of the Management of Criminal Investigations.
VIII. ARSON: WHO SHOULD INVESTIGATE?

There are legal provisions for both police and fire services to become involved in arson investigation. It appears, however, that confusion exists over who actually has responsibility, who should have responsibility, as well as who wants responsibility for the various phases of an arson investigation.

Some authors note there is fierce competition between police and fire services for the right to investigate arson while others note a reluctance by each service to become involved. For example, fire administrators interviewed by Krajick (1979:14) indicated that fire-fighters should have sole responsibility (from cause to conviction) for arson investigation since they are more motivated to solve arson cases. Other fire administrators, however, have argued "that investigation of arson, a crime, is police work..." (Feinman, 1978:29).

After the reclassification of arson in the U.S. to a part one crime one author noted that: "...the fact remains that arson is now a part one crime and this makes it a police problem by definition " (Lane, 1979:14). Referring to the police involved in arson investigation in rural areas of British Columbia one Lane seems to be implying that part II crimes (U.S.) are not necessarily police problems; the logic is confusing.
...they realize that they lack competence, they find the task frustrating and above all, they feel it is not their proper job. (Keenleyside, 1975:78).

In a Canada wide study of fire services it was noted that:

Fire chiefs say that the police sometimes begrudge the time required unless there is a homicide involved. (Switzer and Baird, 1980:70).

Concerning the fire service, Switzer and Baird (1980) point to the glamour of fire-fighting as a major factor in the recruitment of personnel (Switzer and Baird, 1980:38). Perception of the proper role of fire service personnel as one of fire suppression has been cited as a major obstacle in attempts to enhance the role of fire prevention (Switzer and Baird, 1980:38). In western Canada, it appears that fire prevention efforts did not begin to emerge until the late 1940's (Alberta Hansard, 1976:638-659). Attempts to develop the arson investigation role (as opposed to general fire investigation) are even more recent and have met with similar resistance.

Regardless of how certain individuals associated with the police and fire services view their respective roles, for public service administrators the issue of concern is who should investigate, not who wants to investigate the crime of arson.

Police and fire services may be utilized in the investigation of arson in the following ways: sole responsibility to the police; sole responsibility to the fire

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\textsuperscript{2} During interviews with fire service personnel it was quickly pointed out that the term "firemen" was inappropriate, the label fire-fighter was preferred.
service or; a combined effort. The combined effort can be divided into what will be referred to in this chapter as a "pure team" (a police officer and fire officer working together through all phases of an investigation) or a "joint team" (fire officers conducting arson detection and police officers then conducting the subsequent investigations).

It is the intent of this chapter to explore the advantages and disadvantages of reliance on one or another of the above possibilities. To do so, three questions will be addressed. First, what are the legal obligations and powers of each service with respect to arson investigation? Second, what is the expertise that members of each service bring to an arson investigation. And third, what are the problems associated with the "joint team" or "pure team" concepts of arson investigation?

**Police and Fire Service Powers**

Although the introduction to this chapter promised a review of police and fire service powers and obligations with respect to arson investigation, emphasis will be on fire service powers. The general powers of the police respecting search and seizure, the rules of evidence, and powers of arrest (which of course apply to the investigation of fire-crimes) have been the subject of discussion in numerous legal and criminology texts. As this
information is so readily available elsewhere\textsuperscript{3} it will not be discussed in detail in this chapter. While other legal powers are discussed, the bulk of this section relates to the legal provisions respecting entry, search, and seizure, in relation to "a building, receptacle or place"\textsuperscript{4} - more specifically dwelling houses and businesses.

Very briefly then, the general police powers of arrest are outlined in s.450 of the \textbf{Criminal Code of Canada}\textsuperscript{5}, although there are other provisions and powers in the Code such as those afforded by s.31 (arrest for breach of peace) as well as powers external to the Code such as the arrest provisions under provincial highway traffic acts. Search and seizure by warrant is also outlined in the Criminal Code (s.443 and s.444) and again is an area subject to different provisions from within the Code (eg. s. 103 relating to restricted weapons), or from other legislation such as Provincial Liquor Acts, or the \textbf{Narcotic Contol Act}\textsuperscript{6}. In a nutshell, the police are free from civil and criminal redress only if they enter and seize items from a "building receptacle or place" with consent, under statutory

\textsuperscript{3}For a detailed discussion of evidence see McWilliams (1974); for a critical view on current evidence collection and admissibility see Ratushny (1979). For powers of arrest, search and seizure see for eg. Clark, Barnhorst and Barnhorst (1977:72-91); Bolton (1976:11-23); Griffiths et al. (1980:83-95)); Cohen (1977:40-105); Parker (1977:256-308).

\textsuperscript{4}See section 443 (1) R.S.C. 1970, c.34.

\textsuperscript{5}R.S.C. 1970, c.34.

provision, or with a properly obtained and properly executed search warrant. A discussion of evidence obtained illegally will be presented in a subsequent section of this chapter.

Section 91(27) of the British North America Act (1867) gives the Government of Canada exclusive jurisdiction to enact legislation concerning criminal law and procedure while Section 92 (14) of the B.N.A. Act gives the provincial governments exclusive power over the "administration of justice". As outlined in the Police Act certain municipalities in British Columbia are obligated to provide police services:

"17 (1) Subject to subsection (3) it is the duty of every municipality having a population of more than 5000 persons, to provide, in accordance with this Act and the regulations, policing to adequately enforce municipal by laws, the criminal law and the laws of the Province, and to generally maintain law and order in the municipality. (emphasis has been added).

Section 22 of the Police Act outlines the duties and functions of a municipal police force in general terms as the duty "to enforce, in the municipality, municipal bylaws, the criminal law and the laws of the Province." A municipal constable is given jurisdiction to carry out the duties, privileges and responsibilities of a police officer by the authority of Section

7Schedule B of the Canada Act, 1981 is entitled the Constitution Act. The Constitution Act subsumes most of the British North America Act, and makes changes, but none that affect the discussion in this section. Part I of the Constitution Act is entitled "Canadian Charter of Rights and Freedoms" and includes important modifications to the Canadian Bill of Rights, 1960, as discussed in subsequent sections of this chapter.

8R.S.B.C. 1979, c. 331. There are other less demanding sections in the Act that outline the responsibilities of communities with populations less than 5000.
The administration of fire services is also a provincial responsibility. Section 92 of the British North America (B.N.A.) Act is entitled "Exclusive Powers of the Legislatures". Under this section a number of areas are listed in which the provinces have exclusive jurisdiction. One area (S. 92 [13]) is "property and civil rights", a phrase that:

...has long been accepted and interpreted as giving the provinces the authority and responsibility in the area of fire protection to the public. (Switzer and Baird, 1980:11).

There is, however, no duty on a municipality to provide fire services. Section 699 (1) (a) of the Municipal Act\(^9\) of British Columbia states:

699 (1) (a) The council may by bylaw...establish a fire department. (emphasis has been added).

While there is no obligation to create and maintain a fire department in a municipality there is an obligation in all parts of B.C. for certain persons to investigate the cause, origin, and circumstances of certain fires, as demanded by the provincial fire Act. In the performance of this duty there are statutory powers afforded to investigators. The authors of texts on police powers (supra, fn. 3) refer to extraordinary powers afforded the police through provincial legislation but seldom cite the powers in the various fire service Acts.

With a few notable exceptions the provincial Acts in

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\(^9\)R.S.B.C. 1979, c.290.
western Canada that create and outline the duties of a provincial fire commissioner are similar in construction and content. Parts and sections of the Acts of the western provinces have been extracted and are discussed below in relation to the Fire Services Act of British Columbia.

The B.C. Fire Services Act provides for the appointment, by the Lieutenant Governor in Council, of a provincial fire commissioner. The general duties of the fire commissioner and his assistants are outlined in the Act. Of particular importance to this study is section 9(1) which relates to the initial investigation of fire:

To ascertain whether a fire was due to accident, negligence, or design, a local assistant shall, within three days after the fire, excluding holidays, investigate or have investigated, in a general way the cause, origin and circumstances of each fire

a) occurring in the municipality, district or part of the province for which he is a local assistant; and

b) destroying or damaging property or as a result of which death has occurred.

The facts of this general investigation shall be sent immediately to the fire commissioner. While this section demands an investigation of all fires, other sections of the B.C. Act outline the circumstances of an inquiry


11 R.S.M. 1980 c. F-80 s.9 (2).

12 R.S.B.C. 1979, c.133 s. 14(1) s.16.
Extraordinary powers of entry and search are provided for in the fire service Acts of the four western provinces. With the exception of British Columbia, however, there is also provision for seizing and removing evidence from a dwelling that has experienced a fire. In Manitoba, Saskatchewan and Alberta, the power to enter a building and/or premise and seize evidence is clearly outlined. Manitoba, for example, provides the following powers:

S.55 The fire commissioner, a deputy fire commissioner, an assistant fire commissioner or a local assistant may, for the purpose of exercising the powers or performing the duties conferred or imposed upon him under this act:

a) at any hour of the day or night and with or without the consent of the owner or occupant, enter and examine any building or premises where a fire has occurred and any other building or premises adjoining it or near it;

b) at any hour of the day or night and with or without the consent of the owner or occupant, enter and examine any building or premises where he has reason to believe that there may be a substance or device likely to cause a fire;

c) for such period of time as may be required to complete the examination of a building or premises under clause (a) or (b) and with or without the consent of the owner or occupant, close the building or premises and prevent the entry therein or thereon by any person;

d) with or without the consent of the owner or occupant remove from any building or premises being examined under clause (a) or (b), and retain for examination, any article or material found therein or thereon that in his opinion may be of assistance in connection with any matter under investigation."

Extraordinary power of search and seizure is also provided for in Alberta:

s.11(5) The fire commissioner, his deputy, an inspector
or a local assistant may

b) remove from a building or premises and retain for the purposes of the investigation or any subsequent proceedings, anything that in his opinion is material to the investigation.

For the purposes of a fire investigation the Acts of western Canada give the fire commissioner, his inspectors, and local assistants (usually fire chiefs of municipalities) the powers of a police officer. In Saskatchewan an additional provision allows police officers to enjoy the powers of a fire commissioner and his assistants. Section 14.2 of the Fire Prevention Act of Saskatchewan reads:

s. 14(2) A police officer or peace officer has the power and protection provided by section 9 and 10 to enter any building or premise and may, subject to any instruction from the fire commissioner, seize anything that may be evidence of arson or attempted arson. (Underlining not in the original)

During informal interviews with members of the B.C. Fire Commission it was suggested that they have the same powers as the police with respect to seizure of evidence by virtue of section 7 of the Fire Services Act of B.C. and hence explicit statutory provision for seizure is unnecessary. It appears this belief could result in legal problems. Section 7 of the B.C. Act reads:

"The fire commissioner, his inspectors and local assistants have the powers of a peace officer for the purposes of this act."

The B.C. Act gives members of the fire commissioner's office the general powers of a peace officer (s. 7) while the Acts of Manitoba, Alberta, and Saskatchewan only grant fire commissioners the powers of a peace officer with respect to arresting persons creating a disturbance at a fire or suspected of stealing any item from a fire scene.
The definition of a local assistant is:

'local assistant' means a local assistant to the fire commissioner and includes

(a) in a municipality that maintains a fire department, the fire chief and persons authorized in writing by him to exercise the powers of a local assistant;

(b) in a municipality that does not maintain a fire department, the mayor of the municipality, provided that the fire commissioner may appoint some other person to act as the local assistant instead of the mayor;

(c) in any part of the Province, a person appointed a local assistant by the fire commissioner [note: see section 6(2)] (emphasis has been added).

Section 6(2) of the Act states:

where no local assistant has been appointed in a part of the province not in a municipality, or the appointed local assistant has ceased to act, the member of the Provincial Police stationed in the district is local assistant until a local assistant is so appointed.

Read in relation to one another, sections 1, 6(2) and 7 of the B.C. Act indicate that for whatever reason, British Columbia's legal draftsmen have apparently allowed for the granting of police powers with a broader latitude than is the case in other provinces. Any person authorized in writing by the fire chief of a municipality to act as a local assistant automatically assumes the powers of a peace officer for the purposes of the Act. In the other western provinces persons to whom the fire chief can grant peace officer status is limited to members of the fire service14. While much of this discussion may appear to be unduly theoretical (B.C. fire chiefs are not about to appoint anyone off the street as a local assistant) it is nonetheless suggested

14 For example R.S.A. 1980, c. F-10 s.4 (1) a) ii).
that the present lack of clear legislation with respect to the seizure of evidence from a person's home or business, coupled with the variety of persons eligible for peace officer status, may create serious problems for the successful introduction of evidence at a criminal trial as well as increase the probability of the fire commissioner's office facing a number of different law suits.

As Cohen (1977:89-90) points out, section 1(a) of the Canadian Bill of Rights guarantees the "security of the person and enjoyment of property and the right not to be deprived thereof except by due process of law...". Cohen further states:

"The protection of the citizen (such as it is) is not to be free from all searches and seizures, but rather it is his right to be free of all searches and seizures that are unreasonable and arbitrary. Where he is violated by police actions which are unreasonable and arbitrary the citizen may seek redress in civil or criminal proceedings... (emphasis in original).

While evidence seized under any circumstances may be admitted as evidence, if the police do not follow due process of law they may face legal action - thus, when consent to search has not been obtained the police are supposed to rely on search warrants or the appropriate statutory provisions.

Ericson (1981) argues that the two opposing models of the criminal justice system described by Packer (1968) - the Due Process Model and the Crime Control Model - do not act as restraints on each other. He states that "due process is for crime control not in opposition to it." (Ibid. p.15). It

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R.S.C. 1970, Appendix III.
appears that Ericson views the tendency of the police to use available legal powers to their advantage as repulsive. He states:

Procedural law can have the effect of giving strength to detective conduct they were supposed to restrain. As we have seen, in almost all cases detectives are able to use them to their advantage, or get around them legally, without problems. (Ibid. p219).

Although Ericson's perspective may create debate it clearly forewarns that if some persons object to the police using provisions that do exist one can expect objection to investigators who use "provisions" that only appear to exist\(^\text{16}\).

As noted, Section 1(a) of the Canadian Bill of Rights used the phrase "due process of law" and the section in general has been interpreted as applying to the search and seizure of a person and his property. The "Canadian Charter of Rights and Freedoms" now explicitly codifies this right in section 8:

Everyone has the right not to be subjected to search or seizure except on grounds, and in accordance with procedures, established by law.

Arson investigators must ensure that in their crime control efforts they use the laws that are available, and those that do not, should expect to be dealt with accordingly. As the seizure of evidence for accelerant analysis is common practice, an important question is, 'Is a local assistant in British Columbia who seizes, without a warrant, a sample of carpet, furniture, \(\text{\ldots} \)

\(\text{\ldots} \)

\(\text{16}\) It is not the intention of this chapter to discuss the law of torts, however, a review of the sections in Canadian Encyclopedic Digest (Ontario) 3rd Ed., 1981 that are entitled "Tort", "Trespass", and "Public Officers" indicates law suits may be expected under certain circumstances.

174
clothing etc. from a dwelling house acting "in accordance with procedures, established by law", and is he/she protected from redress in the majority of instances?' While it would appear that B.C.'s lack of specific power to seize evidence is a moot point - in light of the acceptance of illegally obtained evidence by Canadian criminal courts - the fact that three provinces include seizure provisions and one does not is somewhat puzzling.

In addition to the extraordinary powers of search and seizure that exist in most provincial fire service Acts there are also provisions in most Acts to compel statements from witnesses/suspects. Under section 13 of the B.C. Fire Services Act in any situation where the fire is suspicious an additional report must be submitted by the fire investigator outlining the names of the owner or occupier of the property, its location, use, and occupancy. Assistance in completing this form is obtained from section 11 which states:

It is the duty of every owner and occupier of, and every person residing or employed at, a building, premises, motor vehicle, vessel or railway rolling stock where a fire occurs, to furnish, at the request of the local assistant, fire commissioner or his inspector, information he has relating to a fire or the property it destroyed or damaged.

In essence these sections combined with section 56 (c):

A person commits an offence who... violates a provision of this act or regulations where no separate offence is provided.

provide the persons conferred the powers of the Acts a statutory
power of interviewing or interrogating\textsuperscript{17}.

As well as granting certain powers that are of assistance to an initial fire investigation each of the Acts of the four western provinces outline the circumstances under which a formal inquiry may be conducted\textsuperscript{18}. The Acts grant the fire commissioner, or those appointed by him to conduct an inquiry, the powers of a provincial court judge\textsuperscript{19}. In British Columbia, for the purposes of an inquiry, the fire commissioner has the powers outlined in sections 36 to 46, 48, 52, and 58 of the Offences Act\textsuperscript{20}. These sections relate to the issuance of subpoenas, summonses, warrants, examinations under oath and the authority to adjourn a hearing for up to 8 days (Section 16 of the Fire Services Act increases the length of adjournment from 8 to 30 days).

After an inquiry held by the fire commissioner all information must be submitted to the Attorney General (if proof of an arson charge exists). For example (and representative of

\textsuperscript{17}The Supreme Court of Canada in Moore v. The Queen (1979) 1 S.C.R. 195 dealt with a strikingly similar set of circumstances; that is, the duty of peace officers to enforce laws and the duty of persons under certain Provincial Acts to make a statement versus the right to remain silent. Moore was charged with a criminal offence "obstruction of justice" for refusing to give his name and address to a peace officer who was attempting to issue a summons for a traffic Act violation. Moore's appeal to the Supreme Court of Canada was dismissed.

\textsuperscript{18}For example, see R.S.B.C. 1979 c. 133 s.14 to 18; R.S.A. 1980, c.F-10 s.12-18.

\textsuperscript{19}R.S.A. 1980, c. F-10, s. 13 (1)(a); R.S.M. 1980 c. F80 s.46.

\textsuperscript{20}R.S.B.C. 1979, c.305.
sections in the other Acts) the Alberta Fire Prevention Act

notes:

s.18(1) If the fire commissioner is of opinion at any
time that there is evidence sufficient to charge a
person with
a) the crime of arson, or
b) an attempt to commit arson,
he shall at once report to the Attorney General and
furnish him with the evidence, together with the names
of the witnesses and information obtained by him.

Finally, the fire Service Acts of each western province
make provision for the ordering of withholding the payment of
insurance monies pending completion of an inquiry or
investigation. In Manitoba

The fire commissioner may, where he deems it advisable in
the public interest, order the withholding of payment of
insurance money that may become payable by reason of a
fire, for a period not exceeding sixty days from the
occurrence of the fire, pending an investigation of the
cause and circumstances of the fire. (R.S.M. 1980 F80
s.61).

In British Columbia the fire commissioner "may permit
withholding of payment for 90 days "notwithstanding a statutory
provision or a condition in the policy to the contrary"21.

Regarding extra-ordinary powers, the Acts of Alberta,
Saskatchewan, and Manitoba, appear to be more explicit than the
Fire Services Act of British Columbia. With a few exceptions the
fire service Acts of the western provinces may provide
assistance in the completion of an arson investigation by
ensuring that initial investigations can be as complete as

21 R.S.B.C. 1979 c.133 s.15.
possible\textsuperscript{22}; providing additional powers of search and seizure\textsuperscript{23} and providing for a quasi-judicial inquiry designed to reveal as many facts as possible respecting the circumstances of the fire in question. Invoking any or all of these provisions however, may create problems for subsequent criminal and civil proceedings. More specifically, compelling witnesses or suspects to testify as to their involvement in an arson fire may negate the use of such statements at a criminal trial. Consider section 5(1) of the \textit{Canada Evidence Act}\textsuperscript{24}:

No witness may be excused from answering any question upon the ground that the answer to such question may tend to incriminate him, or may tend to establish his liability to a civil proceeding at the instance of the crown or of any person.

Therefore the person conducting an inquiry under a fire service Act has the power to compel the answer to incriminating questions. If, however, the witness/suspect states that he wishes to be afforded the protection of section 5(2) of the Canada Evidence Act before he answers each question, the answer may not be admissible in a criminal trial subsequent to the hearing. Section 5(2) of the \textit{Canada Evidence Act} states:

Where with respect to any question a witness objects to answer on the ground that the answer may tend to incriminate him or may tend to establish his liability to a civil proceeding at the instance of the crown or of any person.

\textsuperscript{22}Switzer and Baird (1980) indicated that at the time of their survey these investigations tended to be perfunctory in nature.

\textsuperscript{23}It should be noted that each of the Acts that do provide these powers explicitly note that only items relating to arson or attempted arson may be seized.

\textsuperscript{24}\textit{R.S.C. 1970, c. E-10.}
any person, and if but for this Act, or the Act of any provincial legislature, the witness would therefore have been excused from answering such questions, then although the witness is by reason of this Act, or by reason of such provincial Act, compelled to answer, the answer so given shall not be used or receivable in evidence against him in any criminal trial, or criminal proceeding against him thereafter taking place, other than a prosecution for perjury in the giving of such evidence.

Persons who do not take advantage of section 5 (2) of the Canada Evidence Act and utter incriminating statements at an inquiry do not have such statements admitted as a matter of course. In R. v. Drouin and Drouin the crown appealed on the ground that although the trial judge had admitted a statement taken under oath at a fire commissioner's inquiry the statement was disregarded. Fauteaux C.J.C. in the judgment of the court stated:

The question of the admissibility of evidence and the question whether, once admitted in the record, such evidence has probative force, are two different matters; the first is a question of law left for the judge to decide, and the second is a question of fact for the jury or the trier of facts, as the case may be. (at p. 383).

Therefore, although the statement of a person who fails to claim the protection of the Canada Evidence Act may be admitted in subsequent criminal proceedings the judge or trier of facts still may disregard the content of the statement.

While federal legislation may be invoked to ensure testimony acquired during an inquiry may not be entered at criminal proceedings, provincial legislation may be cited to protect against testimony being used at subsequent civil proceedings.

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25(1972) 10 C.C.C. (2d) 381 S.C.C.
proceedings. For example the Evidence Act\textsuperscript{26} of British Columbia states:

s.4 (2) If compelled to answer, the answer given shall not be used or receivable in evidence against him in any civil proceeding or in any proceeding under any Act of Legislature."

If a person testifying at a fire commissioner's inquiry is fortunate enough to have legal counsel, or is aware of the procedure for properly claiming the federal and provincial protection it becomes apparent that questioning of a witness/suspect may have serious consequences for those who place a higher priority on criminal or civil proceedings. Nonetheless compelling a person to testify at a fire commissioner's inquiry may well be of invaluable assistance in preparation for criminal and civil trials for the following reasons.

The protection afforded the witness/suspect does not apply to incriminating documents\textsuperscript{27} or the revelation of incriminating evidence which results from examination at an inquiry. In \textit{R. v. Wray}\textsuperscript{28} the accused confessed to a murder after a lengthy interrogation and then led the police to the murder weapon which was hidden in a swamp. The confession was held to be inadmissible but the evidence obtained (the murder weapon) was held to be admissible.

\textsuperscript{26}\textit{R.S.B.C. 1979, c.116.}
\textsuperscript{27}\textit{see \textit{R. v. Simpson and Simmons}, (1943) 3 D.L.R. 367 S.C.C.}
Ratushny (1978), who concludes that there really is little protection in Canada against self-incrimination notes:

...the weight of authority in Canada indicates that the underlying policy concern of the voluntariness rule is the reliability of the evidence in question. (Ratushny, 1978:28).

That is, regardless of why a person divulges information leading to the discovery of physical evidence, if the evidence is reliable and relevant it may be entered as admissible\(^{29}\). Such reasoning has caused considerable comment from the legal profession (see Greenspan, 1981; Ratushny 1979). Nonetheless, the current legal environment respecting evidence obtained illegally or from a compelled statement (during an inquiry) is conducive to the revelation of information vital to the successful conclusion of a fire-crime investigation.

In anticipation of such quasi-judicial inquiries becoming little more than fishing expeditions, Ratushny (1978) warns that: "...the opportunity to question the witness could be used to advance the criminal investigation with obviously incriminating consequences to the accused." (Ratushny, 1978:349). In *Di Iorio and Fontaine v. Warden of Common Jail of Montreal* and *Brunet et al*\(^{30}\) Mr. Justice Dickson in the majority judgment of the Supreme Court of Canada implied that improper use of inquiries would not be tolerated:

\(^{29}\)While information obtained as the result of an inadmissible statement or illegal search may be entered the persons who extracted the information may be subject to prosecution for trespass, assault, break and enter etc.

\(^{30}\)(1976), 33 C.C.C. (2d) 289.
Whether or not one agrees with a result which may force a person to assist in an investigation of his criminal activity, the provisions of s.5 of the Canada Evidence Act and both federal and provincial Inquiries Acts compel such a result. Quebec's Crime Inquiry introduces no new and insidious form of investigation into our judicial system and there is no evidence before the court that it is a colorable attempt to evade the procedural provisions of the Criminal Code. (at p.337, emphasis has been added).

The fire commissioner and his assistants are under statutory duty to attempt to discover the cause, origin and circumstances of fires that occur within their jurisdiction. When an inquiry is used for this purpose, evidence supportive of a criminal charge may emerge. Whether or not attempts to introduce this evidence at a criminal trial would be considered a "colorable attempt to evade the procedural provisions of the Criminal Code" would depend on judicial interpretation. To date the fire commissioner of B.C. has not ordered or held a formal inquiry as outlined in the Act. In Manitoba the fire commissioner has just completed a formal inquiry but it appears that they are almost as infrequent in Manitoba as they are in B.C. It is unknown if such inquiries have been conducted recently in Alberta, however, two are in progress in the Province of Saskatchewan (Regina Leader Post, Oct. 16, 1982).

The fire commissioner's inquiry is in some respects similar to the American Grand Jury. Speaking of the Grand Jury, Battelle (1980) makes the following observation:

It is obvious from the above that the grand jury is a powerful tool in the conduct of an investigation. True the witness cannot be compelled to testify without receiving immunity from prosecution, but depending on the nature and scope of the investigation and the potential information to be gained, immunity for one or
more fringe participants or even one or more of the
targets may be a small price for the success of the
investigation. (Battelle, 1980:247).

It would appear then, that members of the fire service have
access to powers that may be of greater assistance in arson
investigation than the current legal powers granted to the
police. Also, if the actual "arson" sections of the Code are as
difficult to prove as many arson investigators suggest perhaps
other charges - for example, perjury - should be pursued. If so
the fire commissioner's inquiry may prove invaluable.

This section has outlined the powers of each service (with
emphasis on the fire service). The following section will
explore the expertise that members of each service may
contribute to the investigation of arson.

Police and Fire Service Expertise

In the U.S. in 1970 it was decided at a conference of
crime and fire chiefs that...

the fire service role is one of fire investigation and
arson detection, and not that of arson investigation...
Arson investigation is criminal investigation and in a
category beyond a non-criminal investigation...except
for a few special laws and ordinances in certain
jurisdictions the crime of arson is included in
statutory criminal codes and is therefore a
responsibility of law enforcement authorities. (IACP,

Accordingly, most authors tend to stress the fire service role
in the detection of arson (although it should be noted that the
majority of articles and reports on arson are written by those
connected with the fire service). It has been suggested that to
increase the number of successful arson investigations we should rely solely on the fire service:

Because its primary purpose is preventing and fighting fires, the fire department possesses a degree of commitment to combating arson that cannot be found elsewhere (Abt Associates, 1980:45).

Abt Associates (1980) further state that only 3% of the cities they surveyed gave arson investigation responsibility solely to the police. However, since their survey entailed the solicitation of 435 fire departments with a response rate of 40% (170); perhaps a low number of cities giving sole responsibility to the police was to be expected.

A survey respecting fire services in general was conducted in Canada in which 2506 fire chiefs were sent questionnaires (Switzer and Baird, 1980). Of the 980 responses:

The agencies reported as normally involved in carrying out the investigation of the crime of arson were reported as follows:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td>707</td>
</tr>
<tr>
<td>Provincial Investigator</td>
<td>657</td>
</tr>
<tr>
<td>Fire Department Investigator</td>
<td>380</td>
</tr>
<tr>
<td>Insurance</td>
<td>282</td>
</tr>
</tbody>
</table>

(Switzer and Baird, 1980:A-9).

While the above information does not reveal if sole responsibility is ever given to one service, it does illustrate that each service plays some part in the investigation of arson.

Suggestions that the fire service should have sole responsibility for arson investigation (as opposed to just detection) have not passed without criticism. It has been suggested that fire service personnel could not adequately
complete all phases of an arson investigation (from cause to conviction) because they would find it difficult to adapt to the new role of "adversary" rather than their traditional role of "helper" (Abt Associates, 1980:39). In conjunction with this complaint is the contention that firefighters lack investigative skills necessary for successful interviewing of witnesses and interrogation of suspects (Abt. Associates, 1980; Krajick, 1979).

Advocates of reliance on the police point to their training in criminal investigation, interaction with informants, availability of resources, and access to criminal files as reasons for police involvement (Krajick, 1979:11-12). A list of arguments against reliance on police personnel is provided by Abt Associates (1980:39). These range from reluctance to do the dirty work of the investigation (i.e., sifting through the debris), to slower response time, to fear (expressed by the fire service) of the crime receiving a low priority. The prime reason for not relying solely on the police is their lack of experience with fire and fire cause investigation.

Ultimately delegation of investigative responsibility should be based on expertise. But does expertise necessarily follow years of experience? The:

...knowledge of fire extinguishment and developed skills can qualify fire personnel for work in fire prevention and its related field of fire safety and education, but it does not qualify them to investigate fires along classic lines and it may not even qualify them for determining the origin of the fire and its true cause. (Battle and Weston, 1978:11).
The inference is that while firefighting may provide valuable background, arson investigation requires skills not necessarily developed through that particular type of activity known as fire suppression. While fire service administrators may violently protest such suggestions claiming that arson investigation is indeed an area that should not be entered without first experiencing the heat of an actual blaze, their passion for protecting that which they feel is their private domain reflects a similar attitude found amongst the police and police administrators.

Defensive attitudes exhibited by members of police agencies have been addressed in chapters V and VI of this thesis. But the desire to maintain an element of "mystique" is not common only to the police. The following quote demonstrates one person's willingness to debunk detective "mystique" while at the same time revealing a desire to create or maintain the "mystique" of the fire service:

"There's a certain mystique that's built up about police detectives, that what they do is magic, that their methods can't be learned by anyone else," said William Manny, chief fire marshals. Manny asserts that his investigators are at least as competent at criminal investigations as the police, and that they have more skills. "A fireman knows how a fire starts, how it develops. He's seen thousands of them in all different stages and his intuition tells him certain things," he said. Manny and other fire officials say that assigning fire marshals to determine the cause of a fire and then handing over the case to a detective is not as easy as it sounds. There are crucial fine points one must know about the fire when questioning witnesses, they say, that cannot be transmitted orally or through reports to someone who is not a fireman. (quoted from Krajick, 1979:14).
Ultimately however, both police and fire service administrators must recognize the possibility of certain deficiencies peculiar to each:

A very sizeable percentage of fire personnel refuse to admit that they are not trained in criminal investigation or that that responsibility belongs to the police. On the other hand, many police officials are reluctant to acknowledge the fact that the great preponderence of criminal investigators are not qualified as fire scene investigators or do not have the necessary experience to qualify in court as expert witnesses on the causes of fire. (Battle and Weston, 1978:22).

The most basic argument for reliance on members of the fire service is that they bring to the investigation a degree of expertise respecting fire cause determination. But not all fire-fighters have experienced the type of activities that develop this expertise; obviously the task is to select those who have, as well as those who have an affinity toward criminal investigation.

The most basic argument for reliance on members of the police service centers around a proficiency at criminal investigation or, more specifically, the ability to interview and interrogate legally and successfully. It becomes important then to address the worth of interrogation and interviewing to the successful investigation of fire-crimes.
Interrogation and Criminal Investigation

Recently an attempt was made to study the contribution of questioning to the detection of crime. In the introductory comments of their study Softley et al. (1980) summarize the continuing debate between those who believe that the powers of the police to question suspects should be increased and those who believe such powers should be curbed. A sentiment expressed by Stephen (see Cohen 1977:77) tends to illustrate the extremes of those wishing to curb the powers of interrogation:

It is pleasanter to sit comfortably in the shade rubbing pepper into a poor devil's eyes than to go about in the sun hunting up evidence.

This sentiment implies that the police are making a choice, that is, evidence other than a statement, admission or confession exists and is within police power to be discovered. Softley (1980:4) and the Rand Corporation study of the Criminal Investigation Process tend to indicate that in many cases this does not necessarily fit reality. As Softley et al. (1980) point out, the skill of the interrogator may well be the only deciding factor in securing the information necessary to construct a case, and of course even more so where other evidence is inconclusive (Softley et al., 1980:32). Softley et al., while noting the limitations of their study (small sample size, observer effect etc.) indicate that:

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Home Office Research Study #61 Police Interrogation, hereafter referred to as Softley et al. (1980).
...if the power of the police to question suspects in their custody were curbed, the number of offenders who escape conviction would tend to increase and the detection rate would tend to fall. These effects would not necessarily be dramatic in terms of rates. (Softley et al., 1980:48).

The problem is one of protecting the rights of citizens while at the same time attempting to allow police the use of an apparently effective tool.

A number of suggestions have been offered that would assist in the protection of a suspects rights but one that appears to be most common is to provide 24 hour 7 days a week access to a solicitor (Softley et al., 1980; Zander, 1972; King, 1973; Baldwin and McConville, 1979). Aside from the very real possibility that not all solicitors would welcome the possibility of being on call on a 24 hour basis it is suggested that such a procedure would result in the death of testimonial evidence. Ratushny (1978), although an opponent of self incrimination, describes the dilemma in the following terms:

The greatest advantage of custodial interrogation to the police is that it will usually occur before the suspect has had an opportunity to obtain legal advice. Sound legal advice will be, inevitably, to say absolutely nothing to the police. It is perhaps understandable from the police point of view, therefore, that one finds examples of police officers actively denying the accused an opportunity until the investigation has been completed. (Ratushny, 1978:323; emphasis has been added).

32 Softley et al. (1980:4) lists five: providing solicitors at the police station; audio or video recording of the interrogation; examination of suspects by a magistrate in open court; establishment of an independent prosecution service and; giving the Judges' Rules the force of law.
Physical evidence may be readily available to prove that a fire-crime has occurred but evidence linking a suspect with the fire-crime is more difficult to uncover. In some cases it may not be humanly possible to discover such evidence. In situations where this is true the traditional focus on arson charges has led to many early case closures. Battelle (1980:123) argues that initial investigations coupled with formal quasi-judicial inquiries (such as those outlined in provincial fire service Acts) may result in other charges being more appropriate—specifically, perjury. In a well-planned arson-for-profit scheme the participants often:

...operate from the assumption that their skillful planning and secrecy of operation will protect them from detection and vigorous investigation. Therefore they can be expected to provide false and misleading information to investigators on an almost routine basis. (Battelle, 1980:123).

In those situations where physical evidence is capable of being detected the next chore is to attempt to discover if there are any suspects and if the evidence links the suspect with the crime. This investigative process is partially developed through training and partially through experience and, as some argue, can fit a scientific framework. Chappell et al. (1981) object to the eagerness of some researchers to dismiss the possibility of criminal investigations being conducted within a scientific framework:

In our view this may be an assumption or myth that has been unwittingly dismissed without proper consideration. This is particularly the case vis-à-vis the methods used by investigators. Indeed, a close examination of investigative tactics and procedures suggests that a
While few practitioners would argue with the statement that "Inspector Chance and Sergeant Luck" (see Ericson, 1981:90) play a role in the successful disposition of cases the skill of criminal investigators is also important. The most important of "skills" however, are not necessarily those that enhance the ability to "go about in the sun hunting up evidence". Instead, the most important skill may be the ability to integrate past successful recipes with present available information. As Ericson points out:

...detective work has always been information processing work. Moreover in the vast majority of cases this did not involve lengthy and painstaking effort at gathering physical clues, interviewing witnesses, and generating informants. Rather it involved relying upon established sources and techniques to obtain information, and the use of resourcefulness and recipe knowledge to make the information into a justifiable basis for a particular case disposition. (Ericson, 1981: 211).

If it is through an information processing framework that suspects are linked to evidence or to other crimes, and this process is assisted by the use of a "recipe" approach to the total investigation an integral part of which is the interrogation process - then claims that fire fighters lack such skills and the resources necessary to develop them, should not be taken lightly.

Although researchers have begun to examine the criminal investigation process in general, attempts to explore the actual
efforts made by successful arson investigators are scarce.33. At present, fire cause investigation techniques (detection) may be taught to detectives but what of the "intuitive" knowledge referred to by fire marshal Manny (see page 184)? This "intuitive" knowledge may be the ability to apply past successful "recipes" to enhance information processing. The "recipes" and information processing used in the successful investigation of fire-crimes, however, may or may not be the same as they are for other crimes. Battelle (1980:146) suggests formation of a specialized arson investigation unit, a suggestion that closely parallels the reform recommendations of the Rand Corporation Study (Greenwood et al., 1975). Noting that the unit should have a mix of specialized skills and maintain a high level of involvement with the crown prosecutors office Battelle further stresses that:

> An enforcement unit is more likely to employ the full range of preventative, investigative, and prosecutorial options (including civil remedies) if specialists with backgrounds in applying those remedies are housed within or readily accessible to such units. (Battelle, 1980:147).

If the decision is made to establish a special investigation unit will these investigators interact with other criminal investigators? That is, while some offenders may be true "first time" offenders involved in the commission of one crime what of those who have committed other similar, and other different, offences? With respect to juveniles, for example, it has been

33 One exception is Battelle (1980) in which steps which should be conducted in an arson for profit investigation are outlined.
noted that:

There is practically no evidence to support a hypothesis of the existence of offence specialization among juvenile delinquents. (Wolfgang et al., 1972:244-245).

Would the criminal justice system suffer from the creation of a specialist unit, especially one which may be physically removed from other criminal investigators? If a special investigative unit (arson) is established what would be the communication, cooperation, and coordination problems when such units are physically located in police offices? ...fire offices? What other problems might be expected when attempting to coordinate an arson investigation?

Problems with a Combined Effort

The preceding discussion suggests that members of each service have valuable "tools" at their disposal and also illustrates that each have a legal obligation toward the investigation of fire-crimes. In theory it would seem that a "pure" team (members of both services together from cause to conviction) would assist in minimizing any communication problems that may result from two separate agencies conducting independent investigations and then sharing the information. In practice it appears (particularly in British Columbia) that an approximation of the "joint" team concept (fire for detection - police for investigation) is, and will remain, the dominant model of organization for arson investigation. This model may
not be as effective as the "pure" team at easing the problem of rivalry that exists in some jurisdictions.

In some jurisdictions there is a traditional rivalry between the police and fire services; a rivalry which on the surface may seem childish and trivial, but which nonetheless may be the source of strongly entrenched feelings of bitterness. Each claims to provide a more important service to the public. Recent strike threats by Vancouver fire-fighters over lack of parity with the Vancouver City Police tend to demonstrate that rivalry does exist. (See the Vancouver Sun May 12, 1981). In addition, the fire chief of Vancouver (Konig) and the police chief (Winterton) decided against the advice of an external consultant to locate police and fire dispatch services under one roof noting that differences in contract and policies would likely cause tension (Vancouver Sun July 27, 1978: B1). The move, they stated, would ultimately result in fire service personnel being under the command of police personnel. Due to differences in shift scheduling (as defined by statute for fire services and policy for police services), and the likelihood of fire service personnel continuing the traditional practice of food preparation (police personnel would have to observe structured "breaks"), the recommendation to house the two segments under one roof was passed aside in spite of a projected saving of tax dollars.

34 Fire Department Act R.S.B.C. 1979, c132.
Keenlyside (1975) devoted six pages of his report *Firefighting Services in British Columbia* to why the rivalry exists and to why firefighters deserve equal pay. These range from "more dangerous work" to "work longer hours". The potential problems caused by rivalry between agencies that share an occupational interest may be exacerbated if it is unclear who has responsibility for what.

The manual prepared for Battelle offers a descriptive example of some of the problems of coordinating an arson investigation and in some cases provides possible solutions. For instance Battelle notes:

- Problem: The fire was labelled as 'incendiary' but the motive was listed as 'juvenile vandals' or some motive other than fraud.
  - The fact that a competent cause and origin investigation resulted in an incendiary determination is the main factor here.
  - The label 'caused by juvenile vandals' is probably speculation by the fire chief (who should be asked to explain this determination)."

While it is crucial to first determine if a fire was indeed a fire-crime, of equal importance is the type of fire-crime. The motive needs to be determined by something other than speculation. If the fire chief is the person who did the labelling who is it that confronts him and asks for an explanation of the determination? Considering the occasionally overt rivalry - and bitterness - that may exist in some jurisdictions, an explanation request from police service personnel may exacerbate relations. If the two services disagree
on the appropriateness of the label "caused by juvenile vandals", whose determination is reflected in Statistics Canada, Dominion Fire Commissioner, or Provincial Fire Commissioner reports? The problem is less likely to exist if a suspect is known or has been charged but it is the amount and type of fire-crimes in which there is no suspect that ultimately leads to a lack of valid statistics\textsuperscript{35}.

In British Columbia the fire commissioners office provides each fire service with a blank "fire crime" report. A section in the report asks fire service investigators to indicate if the fire was incendiary and then to check one of nine listed motives. These fire crime classifications are used by the fire commissioners office for statistical analysis and inclusion in its annual report. There are no formal criteria that fire investigators may use to assist in deciding which of the arson motives are appropriate. Since the police must submit data on all fire crimes to Statistics Canada (and based on Statistics Canada guidelines), and since the provincial fire commissioner compiles his own fire-crime data it appears that there is ample opportunity for police and fire administrators to perceive the nature of arson in their jurisdiction differently.

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Gordon Anderson, the fire commissioner for B.C., pointed out during an informal interview, that the police (who provide fire-crime data to Statistics Canada) label the fire-crime motive as they see fit and members of the fire service (who provide data for the Provincial fire-crime statistics) do the same. In most cases one service does not see the reports of the other.
Continuing with the problem of investigative coordination, Battelle notes:

Problem: Another investigative agency is moving in and taking over the investigation.

* Immediately arrange a serious face-to-face 'sit down' between management level personnel in each respective agency, in order to avoid a situation where continued competition leads to jealousy and ultimately to sniping and possible subversion of each others' investigation. (Battelle, 1980:88).

Battelle (1980) then suggests that if the attempt is unsuccessful a meeting of persons above mid-level management should ensue. What is happening at the crime scene while "management" continues its peace talks is not discussed. The problem and the "solution" offered is worthy of serious consideration; however, every attempt possible should be made to ensure that "summit" meetings occur prior to problems developing. Formal policy designed to prevent the above noted problem should be in place.

While there is some evidence that the need for formal cooperation (ie. through written policy directives) is somewhat questionable (McDavid, 1979) it is suggested that the advice of Issacs (1967:68) should be attended to by arson administrators:

Formal cooperation or consolidation is an essential ingredient for improving the quality of law enforcement. McDavid (1979) was studying the effect of formal policy on the cooperation between numerous adjoining police departments. Accordingly there was an element of "comraderie" along with the "competition" that may have existed. It is suggested that in some jurisdictions the feeling of "comraderie" may not exist.
between police and fire service personnel who "jointly" investigate fire-crimes.

Finally, with respect to the competition problem, Battelle (1980:89) notes:

"If the competition for this case was generated by the traditional passion for credit and publicity, prepare a detailed plan for the eventual joint announcement through a press release or press conference for the arrests or indictments with each agency given explicit credit for its role in the investigation.

This attempt at "trouble shooting" is tautological at best and appears if anything to create an inducement to continue the competitive atmosphere.

The problems and solutions presented by Battelle appear to revolve around incidents such as one that occurred in New York in 1976. Fire and police officials actually began to voice their distaste for one another while standing amidst a burned out building littered with twenty-five dead bodies (Krajick, 1979:5). While there does not appear to be any public record of a similar Canadian incident the possibility of such an occurrence exists.

**Summary and Comments**

It appears that under certain conditions the power of those associated with the fire service are more conducive to the successful conclusion of a fire-crime. In particular the fire commissioner's inquiry appears to be an attractive, yet seldom used, option for arson investigation administrators.
While it has been noted that fire suppression experience per se does not necessarily make a good arson investigator it appears reasonable to state that persons from the ranks could be found who have fire detection skills as well as an affinity toward criminal investigation. Similarly while police experience per se does not guarantee a skilled criminal investigator it is not unreasonable to state that persons from the ranks could be found who have "good" investigative skills and an affinity toward fire-crime investigation.

In theory it would seem that optimal benefit would be derived from assigning members of each service to investigate from cause to conviction. Communicative problems between agencies would be lessened, the number of persons involved could be reduced, and the problems of interpreting a third person report would be averted lessening the likelihood of one service having to speculate over what the other is doing or has done. In practice it appears that few jurisdictions utilize a "pure team" (Calgary is one exception) and in fact this suggestion would have to be limited to major, urban centers. The concept is however, one which is worthy of serious attention. Government funds currently allocated to the maintenance of media and/or "tipster" hotlines could perhaps be redirected to the solution of the apparent difficulties of creating a pure team concept of arson investigation.
IX. SUMMARY, CONCLUSIONS, AND SUGGESTIONS

In certain areas of Canada and the United States, primarily the larger urban centers, arson is a serious problem. On a national level, however, to label arson as "the most malignant crime", "a spreading cancer", or "the fastest growing crime", is misleading. Since American arson administrators and journalists first began using such descriptive phrases little has been done to justify continued usage; Americans still have a poor grasp on the actual incidence of arson. In Canada the situation is not much better.

In the 1970's, American arson officials set out to attain a number of goals designed to enhance arson prevention and control. As a result, arson in the U.S. was reclassified to a Part I offense and increased federal funding to provide better training, develop arson labs and promote general research, became available. As yet, however, one of the most important goals - to improve arson statistics - has not been realized. Reliable and valid statistics are vital to provide logical and timely direction for training and other reactive and proactive efforts. If anything, the American arson movement has been a hindrance to the achievement of this goal.

By allowing, if not encouraging, the perpetuation of misleading statistics, American officials enabled state and municipal agencies to present their own efforts in a more
favorable light. Local agencies compared their efforts with "national" figures such as "9 arrested and 2 convicted per 100 arsons". The 9 and 2 per 100 figures were, for all practical purposes, fictitious. Nonetheless these figures still appear in the most recent American publications. Continued use of the 9 and 2 per 100 figures place American arson officials in a "no-win" situation. First, continued use of these figures leads one to question the thoroughness of their research. And second, if the figures were somehow vindicated and said to still exist it would appear that the millions of dollars allocated to arson prevention in the last decade have produced no results in terms of arrest and convictions.

Arrest and conviction data were not the only ammunition used during the "war on arson". Distorted data relating to the number of arson incidents as well as the dollar loss associated with these incidents were used. It was illustrated in chapter II that the annual "number" figures were as varied as the sources reporting them. Dollar values suffered from even greater fluctuation depending on whether or not a percentage of unknown, undetermined, or suspicious cause fires were used (or in some cases a certain percentage of all fires).

Respecting the dollar loss value associated with fire-crime a few studies attempted to stress the role of inflation in the escalation of these figures. When one study demonstrated the inadequacy of the Consumer Price Index for adjusting arson

\[\text{For example, a report entitled New York State's Action Against Arson, August 1982, presents the "9 and 2 per 100" figures.}\]
dollar losses, the results were apparently overlooked in subsequent arson related articles. Using the Comparative Cost Multiplier (CCM) (an index which takes into consideration labor and construction material changes) Brace (1980) discovered that the peak years for arson were different from those normally cited and that by 1978 (using 1967 as a base year) half of the nominal dollar loss reported was actually attributed to inflation.

While the use of inflated statistics by American sources appears to have subsided, the fervor of the 70's still exists. Granted that the State of New York had, and still has, a very serious arson problem, the following quote, cited from the preface of a recent New York State report, illustrates that certain officials still try to project local problems to a national level:

> Arson is more powerful than the combined armies of the world. It has destroyed more men, women and children than all the wars of all nations. It massacres thousands of people every year. It is more deadly than bullets and has wrecked more homes than the mightiest guns. Arson brings sickness, degradation and death yet few seek out to destroy it. It maims. It devastates. It kills. It gives you nothing and robs you of all you have. ("New York State's Action Against Arson", August, 1982).

Convinced that arson was a national epidemic the U.S. Congress made legislative changes resulting in the availability of funding from the Law Enforcement Assistance Administration. Faced with increased resources it was necessary to find something to apply them to; arson administrators scrambled for successful prevention programs.
The arson prevention and control program in Seattle appeared to be an American favorite. Seattle utilized an extensive media campaign, public education, "tipster" hotlines, and implemented a "pure" team effort placing police and fire service investigators together to conduct investigations from cause to conviction. Based on the apparent success of the Seattle program, jurisdictions across North America began to experiment with similar strategies. In Canada the provinces of Alberta, British Columbia and Manitoba launched "Arson Alert" programs incorporating arson information phonelines, billboard advertisements and radio/television ads (Seran, 1978; Ulley, 1980).

Respecting Seattles' pioneering efforts, two unfortunate observations may be made. First, it's programs have never been evaluated. In fact:

While these media efforts appear promising, they were not designed to permit statistical validation and it is therefore difficult to attribute changes in the incidence of arson to any particular strategy. (Abt Associates, 1980:90)

And second, what may well be the best component of the Seattle program, the pure team concept of investigation, appears to have stimulated little interest in Canada.

It was demonstrated that fire-crime statistics in Canada are subject to similar definitional problems as experienced in the United States. Statistics Canada, responsible for the collection of fire-crime statistics, has chosen to restrict their "arson" statistics to those incidents that conform to
sections 389 to 392 of the **Criminal Code of Canada** and as such, the burning of certain types of property such as automobiles, trailers, railway cars etc. are often "scored" under the vandalism provisions (mischief) of s.387 of the Code. That fire-crimes are allowed to be categorized alongside vandalism by spray-painting and other forms of damage is extremely objectionable: fire is not a weapon that the offender can turn off by will. While amendments respecting these and other inadequacies have been petitioned for by the Canadian Chapter of the International Association of Arson Investigators no action as yet has been taken by Parliament.

It was demonstrated that the effect of instrumentation was likely responsible for much of Seattle's arson prevention program success. Instrumentation has also affected the data presented as national figures in Canada as evidenced by the reassignment of arson data responsibility to the police in 1974 (an increase of 88% in one year).

The only other federal agency that compiles fire crime data, the Dominion Fire Commissioner, receives from and presents the "arson and other fires" data as collected by Statistics Canada. But in addition, the Dominion Fire Commissioner presents data under the heading "Incendiary Fires". On occasion these two sets of figures are roughly equal, but usually there are substantial differences. The Dominion Fire Commissioner collects all fire data from each Provincial Fire Commissioner (or Fire Marshal). Each provincial fire commission apparently uses its
own arson typology. Further, the investigation of arson, in rural and urban areas, may involve a number of different agencies. Each appears to collect their own statistics, conduct their own investigations, and use subjective terminology. In addition, police and fire services do not necessarily label each fire-crime incident the same. In sum, it is not unreasonable to state that data presently collected on the magnitude and frequency of arson in Canada is difficult to interpret.

Given the problems of data collection and the associated problems with defining the general fire crime headings, and the more specific fire crime types, it would be difficult in Canada to target a specific arson prevention program by means other than subjective assessments. That is, given the apparent lack of policy and guidance from arson administrators on when a fire-crime is to be labelled as "juvenile vandalism", "arson-for-profit" or "arson as pyromania" it would be difficult to determine a predominant motive where one exists. The approach that Abt Associates (1980:6) stress in their report is that each community must examine "the nature of its own arson problem prior to implementation of any arson prevention program". That is, the nature of the offence may not be consistent across jurisdictions therefore analysis at a micro level would be of a more practical value than data collected at the macro, or national, level. Micro level analysis, however, does not negate

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See Brantingham and Brantingham 1976, "Crime Seen Through a Cone of Resolution" for an interesting account of the weakness of macro level crime data.
the importance of attempting to establish consistent terminology across jurisdictions.

Assuming that data were reliable enough to unequivocally state that in a certain area one type of arson is prevalent, arson administrators have a number of different types of programs that they might wish to employ. Prior to embarking on a pro-active or re-active campaign, however, arson administrators should be familiar with the basic strengths and weaknesses of the various methods of evaluating the programs they choose. An attempt was made in chapter IV to review some of the common problems associated with program evaluation. It was noted that aside from "traditional" program evaluation, arson administrators may wish to consider the "Hackler Alternative"; that is, in-house efforts designed to first improve the "records keeping" and "records linking" information that currently exists. Given the apparent weakness in these two areas such direction may be of benefit.

Four program types were discussed in the text: training programs; preventive patrols; mass media campaigns and; arson information management systems.

Attempting to ensure through training that fire cause determination is as accurate as possible is an effort that should be considered a priority in the expenditure of funds allocated for arson prevention and control. Accurate fire cause determination and consistent labelling of fire crime types are the cornerstones of preventive efforts.
Concern that increased training may only serve to raise the number of known arson incidents without necessarily raising the number of convictions were discussed in the text. This concern may be less salient today since training in evidence processing capabilities and court procedures is now included in arson investigation courses. Nonetheless, the underlying fear is that in the three major steps of an arson investigation - arson determination, suspect identification, and conviction - the weak link, suspect identification, seems impervious to improvement.

With arson as vandalism or pyromania, this may be true. Perhaps, for these types of arson, media campaigns are the only option. Arson-for-profit, revenge, or intimidation, however, are areas where improved training centering on suspect identification may have a measurable effect. These types of arson may be classified as "rational" acts. That is, they are committed for a reason, there is a motive which exists to be discovered.

As noted, it appears that efforts to increase and improve arson investigation skills are being made. While such efforts should be applauded, administrators should also attempt to ensure that the training is actually having some effect.

Arson prevention patrols appear to be viable only if two conditions are met: there is an extremely high concentration of occurrences and abundant resources exist. Given the cost and relatively unsuccessful results of police experiments with preventive patrol directed at offences that occur more frequently than arson (such as break and enter) it seems
unlikely that arson specific patrols would fare any better.

A program that appears to be gaining favor in the U.S., and one which may be re-active or pro-active, is the use of Arson Information Management Systems. Such systems have the potential to provide arson administrators with valuable guidance for policy decision making by pointing to trends as they develop and identifying arson prone areas. The decision to employ an arson prevention program should be based on the specific problem of a community. Early warning systems may be useless if vandals are responsible for the majority of arson fires and media campaigns may have little influence over financially distraught property owners. Arson Information Management Systems could be used to guide other programs as well as being invaluable for improving the reliability and validity of fire-crime data.

Aside from the four types of programs specifically aimed at arson, it was suggested that arson administrators, as criminal investigation managers, may wish to look beyond the limitations of specific arson programs. A suggested area was the Management of Criminal Investigations (MCI) research.

While some of the findings of the Rand Corporation Study of the Criminal Investigation Process (often referred to as one of the originators of MCI) have been criticized, refuted, or retracted, that study did raise a number of simple yet vital issues. Primarily, the Rand study was heralded as major factor in the decision of police administrators to question just what it is that their criminal investigators do. The Rand researchers
suggested that it was often the nature and circumstances surrounding the offence, rather than the application of specialist skills, that most often lead to a successful conclusion. In an effort to discover and/or confirm the most important solvability factors, numerous studies have been conducted. Most studies, however revolve around a limited number of offences; primarily break and enter, and robbery.

While much of the MCI research required a de-mystification of "detective work", an element of "mystique", it was noted, also appears to exist in firefighting circles. As such, attempts to determine the key factors in successful arson investigations are even more difficult for "outside" researchers since there are two levels of mystique to overcome. Further, if different types of arson require a different type of investigation the search for solvability factors and the practical application of these factors, becomes even more complex. Nonetheless, mapping and analysing what detectives and fire investigators actually do in a broad range of arson investigations may be incorporated into a useful arson taxonomy. Assuming that the investigative process would differ with motives, it may be possible to construct solvability factors not only for logical and formal case screening but also for providing less experienced arson investigators with tools designed to reduce investigator error.

Presently, transference of technical knowledge appears to be the center of attention. These skills, while difficult to master, are more concrete than the "intuitive" knowledge that is
required of a successful arson investigator. "Intuitive skills" being more difficult to grasp, are passed aside as something only experience can teach. The promise of developments in Management of Criminal Investigation research is that rather than coupling fire and police experts and waiting for one to train the other, each may eventually be provided with formal training giving them the basic "intuitive" skills of the other.

Regarding who should investigate fire-crimes, it was illustrated that certain members of the fire service as outlined by the Provincial fire service Acts, are granted greater powers with respect to arson investigation. With one notable exception those who investigate arson under the authority of the Provincial Acts of western Canada may seize and remove evidence of arson. In British Columbia this provision does not exist. As such, it may bear consideration from British Columbia's legal draftsmen.

The fire service Acts of the western provinces also provide for the use of quasi-judicial inquiries into fires. Such inquiries conducted in Saskatchewan have resulted in concern by defense counsel in light of the new Charter of Rights which guarantees "the presumption of innocence". Hence, some have argued that such inquiries should be conducted after a criminal trial. While it is true that efforts must be made to ensure that such inquiries are not "a colorable attempt to evade the procedural provisions of the criminal code", it is this writer's opinion that such inquiries should be conducted prior to a
criminal charge being laid, and only when the intent is to determine the truth of a situation when normal investigative procedures have not proved fruitful.

Given that in most provinces statutory powers for the investigation of arson are in many respects greater than the powers afforded the police, and assuming that there would be a number of experienced fire service personnel with an affinity toward a complete arson investigation (cause to conviction) an attempt was made to explore some of the problems associated with utilizing fire and police services as a pure team. The discussion was based on the premise that in jurisdictions which may entertain this model there exist police officers experienced in criminal investigation - with emphasis on interviewing and interrogation skill - as well as having an affinity for fire cause determination.

Common objections to the pure team concept may be condensed as follows:

1. It would be difficult to balance expenditures equally between the two departments.

2. Fire and police service members would essentially be doing the same work yet in most jurisdictions fire service members are paid less than police members.

3. Each member of the team may fall from grace in the eyes of their peers. Fire members not fighting fires, police officers not really fighting crime.

4. Fire cause determination is the private domain of firefighters, criminal investigation is the private domain of the police.

The advantages of the pure team concept are:

1. Each member becomes more familiar with the role of
the other, including the physical layout of each office, how to trace reports, access existing files etc.

2. Information that may be lost or inadequately transmitted when the joint team concept is used is less likely to occur when the pure team concept is used.

3. The possibility of minimizing the number of persons involved in the investigation is increased. A point which could enhance success at the trial stage.

Further, if fire-crime in general may be divided into two groups; those where the possibility of obtaining evidence exists and those where it is unlikely, the solution of the latter group of offences where a suspect has been identified will have to rely primarily on interrogation skills. Interrogation, and criminal investigation in general is best conducted with as few persons involved as possible. In testing hypotheses the investigator must attempt to learn as much as possible while revealing as little as possible. There is more opportunity for investigator error if other persons involved have interacted with the suspect. In addition, the more people involved in an investigation the more difficult it is to obtain a conviction. Experienced counsel can convert the testimony of a number of persons into contradictions, using one against the other and lessening the likelihood of passing a statement through a voir dire.

It was noted that "rivalry" between the two services appears to be a major factor in the creation of such units. A team effort, however, although subject to initial problems, may well be a viable method of easing this tension where it does in
fact exist, and could assist in averting the embarrassing "turf dispute" situations that have occurred in the United States.

Conclusions

According to American arson administrators many of the problems associated with arson prevention and control appear to be related to the lack of clear delegation of responsibility (Battle, 1978; Braun, 1981; French, 1979) Abt Associates 1980, Webster and Mathews 1979). Arson is a crime; the police investigate crime - Crown Counsel strives for a conviction. Arson involves fire; fire services suppress fires. Arson destroys property; the insurance industry covers the loss. Each agency has an interest in arson, each has its own goals, objectives and priorities. Each may claim to share a common goal - to deter similar future occurrences - but there are varying degrees of commitment to this general goal. The fire service may wish to learn of the methods involved in starting the fire, police may seek a "clearance", Crown Counsel desires a conviction, and the insurance industry desires a favorable civil judgement.

In Canada, other agencies are also involved in arson investigation. Since crown property is not insured, the Dominion Fire Commission has sole responsibility for arson investigation relating to such property. The exception to this rule is property under the auspices of the Department of National
Defence (DND). The DND conduct their own investigations. The result is that neither Statistics Canada, nor any other agency that collects fire-crime data, can be "blamed" for collecting and presenting inadequate data. Nonetheless, if any one agency could provide guidance and make sense of the various statistics subject to collection it would be, and should be, Statistics Canada.

The Canadian Centre for Justice Statistics lists the following as the objectives of its Uniform Crime Reporting (UCR) program:

1. to collect uniform statistics from accredited Canadian police forces, on the nature and extent of reported or known offences against all levels of legislation in Canada in order to provide a measurement of the magnitude and frequency of reported offences;

2. to provide data on the number of these reported or known offences which are processed by law enforcement services and the clearance of those offences in order to measure and to describe the degree of law enforcement in relation to the legislation;

3. to disseminate data and information on the amount of offences and crime which is processed and subsequently cleared thus exhibiting the level of enforcement and degree of respect provided to these laws;

4. to collect, process and disseminate data and information on the structures and organizations of the public police forces and departments to further describe their activities/functions and other relative phenomena.


Based on their own objectives it appears that the Canadian
Centre for Justice Statistics should accept responsibility for the complex task of improving fire-crime data.

Statistics Canada, under authority of the Statistics Act, can legally compel certain officials in the criminal justice system to collect and submit data according to pre-set guidelines while the Dominion Fire Commissioner cannot. It is not suggested that forced compliance is the best route to follow, however, it is suggested that legislated compliance provides a face saving mechanism to practitioners who may object to "working for Stats Canada."

Basically the above suggestion is an attempt to avoid the American tendency to create new agencies to specifically address arson rather than improve and clarify the responsibilities of existing ones.

At present, Canadian arson administrators are in much the same position as their American counterparts in the 1970's. They believe, as this writer does, that arson is a crime worthy of more attention from the public and Parliament. Unlike their American counterparts, Canadian arson administrators lack two essential elements for the launching of an arson movement: there are few areas in Canada that suffer from arson with the frequency and magnitude experienced in certain U.S. jurisdictions\(^3\); and second, there is no equivalent of LEAA from which to apply for funds. Attempts to gain support through the use of speculative data may generate interest but the current \(^3\)

\[^3\]A point which does not diminish the seriousness of the offence.
state of the economy would likely inhibit federal funding. Given the questionable success of the American arson movement, it is just as well. It is this authors' opinion, however, that there is no need, either for a Canadian arson movement or for vastly increased availability of funds. Rather, reallocation of funds presently spent on what are basically American models of arson prevention should be attempted. For example, Alberta's "Arson Hotline" cost roughly $40,000 to implement, the additional yearly expense is unknown. Similar amounts are allocated to British Columbia's "Hotline". It is suggested that these funds could best be used towards addressing the following questions.

Suggestions for Research

A brief list of questions appear below. A few are accompanied by comments or suggestions; most would require survey research. While the questions and areas are brief in number, research which targets these issues is vital to provide guidance for arson prevention and control efforts in Canada.

(A) Statistics and Definitions

1. Do those normally involved in arson investigations consistently label fires as arson or incendiary? Is it necessary to have the two categories?

SUGGESTION: Arson investigators across a wide range of jurisdictions could be presented a list of "fact situations" to determine what type, and how many facts are required before they would assign either label to a fire.
2. Do those normally involved in the investigation of arson consistently label types of arson (within and across jurisdictions)?

SUGGESTION: Present arson investigators with a pre-established scale and have them indicate at which point these facts would in their opinion justify a certain arson type — such as arson-for-profit, vandalism etc.

3. Across a wide range of jurisdictions, how is fire-crime damage estimated and by whom? What do the estimates include?

(B) Solvability and Case Screening

1. What types of factors do experienced arson investigators consider to be most valuable in the investigation of various types of arson?

2. Does analysis of past "successful" arson investigations support the factors resulting from the above question?

3. Could solvability factors for fire-crimes of a less serious nature assist those in areas where resources inhibit the thorough investigation of all suspected fire crime?

4. Could statistically weighted case screening models be adapted to arson screening? Is there actually a need for case screening with respect to arson in Canada?

5. Would case screening integrated with a generalist/specialist model of investigation be of any value?

SUGGESTION: Generalist investigators could use screening factors to assign "Accidental" to a fire and refer those that do not meet pre-determined requirements of accidental to specialists. Labels of Unknown or Undetermined cause should only be made by specialists.

(C) Preventive Programs

1. How many areas in Canada have experimented with programs similar to those developed in the United
States? Have any programs indigenous to Canada been experimented with and have any programs been evaluated?

2. Are there any major urban centers willing or able to experiment with arson prevention efforts?

(D) Methods of Investigative Organization

1. What are the positive and/or negative aspects of the various administrative methods of arson investigation currently utilized in different areas of Canada?

2. Where arson units, joint or team, do exist, on what criteria are they dispatched to the scene of a fire?

COMMENT: Studying the problems encountered by existing pure teams utilized in arson investigation and developing an implementation plan could assist other areas interested in experimenting with this concept.

It is suggested that in addressing the above questions Canadian arson administrators could achieve more progress than by following the American example. While it may be argued that action is best achieved by presenting government with embarrassing "hard cold facts", few exist. This alone should be enough to stimulate concern.
A. Appendix
Organization of Arson Investigation

(I) Background Information

1) Jurisdiction (municipality and province) of person completing this form

2) Agency represented (police service, fire service, insurance agency, other)

3)(a) Rank or Title of Person Completing this Form.

(b) How many years have you been employed in the rank mentioned above?

(c) How many years have you been employed in your agency/department?

4) Does your agency/service/department have an obligation/responsibility/interest in any aspect of an arson investigation in your jurisdiction? YES( ) NO( )

Please attempt to answer the following questions by placing a check mark within the appropriate brackets or by filling in the blank spaces.
(II) Agencies Involved In Arson Control

1) What agencies/services/departments have an obligation, or the authority, to conduct any aspect of a fire crime investigation in your specific jurisdiction? (Note all that apply)

a) Police agency (please specify) ____________

b) Fire agency (please specify) ____________

c) Insurance agencies ____________

d) Fire Commissioners Office ____________

e) Others (please specify) ____________

2) Who actually Conducts:

<table>
<thead>
<tr>
<th></th>
<th>Local Fire</th>
<th>Local Police</th>
<th>Insurance Agency</th>
<th>Fire Commis.</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>On scene fire cause investigation</td>
<td>( )</td>
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<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Fire scene investigation once arson is suspected</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>Processing of evidence at the fire scene</td>
<td>( )</td>
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<tr>
<td>Post fire scene investigation: financial history of property</td>
<td>( )</td>
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<tr>
<td>Post fire scene investigation: location and interviewing of suspects</td>
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221
(III) Organization of Arson Investigation Units

1) Is your unit composed of:
   i) Firefighting personnel ( )
   ii) Police personnel ( )
   iii) A combination of fire and police personnel ( )
   iv) Other (please specify) ____________________

2) Who does your unit report to?
   i) Chief Constable ( )
   ii) Fire Chief ( )
   iii) Both ( )
   iv) Other (please specify) ( )

   COMMENTS
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

3) (a) Where is your office located?
   i) Within Fire Service Buildings ( )
   ii) Within Police Service buildings ( )
   iii) Not located within police or fire service buildings ( )

   (b) Does the location of your unit cause any problems with respect to:
   i) Gaining suspect information ( )
   ii) Coordinating the investigation ( )
   iii) Other problems (if any) ____________________
   ______________________________________________________________________

4) What year and month was your unit created? ____________
5) Are personnel assigned in teams?
   Yes ( ) No ( )

   *If "NO" please skip to QUESTION #8

   *If "YES", how many teams ________

   How many in each team ________

   Comments ____________________________

                                     ____________________________

6) If a "Team Concept" is used in your jurisdiction how is the investigation of arson conducted?

   (a) Arson scene investigation conducted by:
       Fire Service ( )
       Police Service ( )
       Both ( )

   (b) POST arson scene investigation conducted by:
       Fire Service ( )
       Police Service ( )
       Both ( )

   Other arrangements? (please describe)

                                     ____________________________
                                     ____________________________
                                     ____________________________

7) Is the system described in question (6) outlined in formal policies? YES ( ) NO ( )

   From which department do the policy guidelines originate? ____________________________

                                     ____________________________

223
8) Is there written policy in your jurisdiction defining when a fire is to be classified in your reports as:

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) arson</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>ii) incendiary</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>iii) suspicious cause</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>iv) undetermined cause</td>
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</table>

Comments? __________________________________________

9) How do fires classified as "suspicious cause" differ from fires which are classified as "undetermined cause" fires?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

10) Who, in your agency (title or rank), estimates the damage caused by an arson fire?

__________________________________________________________________________

11) a) Does your agency/service/department collect and record data on fire crimes? YES( ) NO( )

b) If "YES" who else uses the data, or collects it directly from your agency?

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Fire agencies</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>ii) Police agencies</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>iii) Statistics Canada</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>iv) Provincial Fire Commissioner</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>v) Dominion Fire Commissioner</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>vi) Insurance Companies</td>
<td>( )</td>
<td>( )</td>
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<tr>
<td>vii) Others? (please specify)</td>
<td>( )</td>
<td></td>
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</table>
(IV) Selecting Cases

1) Which of the statements below apply to your organization? (please check one or more)

a) This organization investigates any fire when requested by:
   Fire Service ( )
   Police Service ( )
   Insurance Agency ( )
   Other (please specify) ________

b) This organization investigates any fire where: Death is involved ( )
   Injury is involved ( )

c) This organization investigates any fire which causes damage in excess of a certain dollar value ( )

d) Other criteria involved? (please specify)
   ____________________________________________________________________
   ____________________________________________________________________

(V) Laboratory Facilities

1) Does your agency send physical evidence to any forensic laboratories? YES( ) NO( )

If YES ....
   NAME OF LABORATORY PROVINCE
   ___________________ ___________________
   ___________________ ___________________

2) Do you perceive any problems in your dealings with laboratories ....YES( ) NO( )

If YES, please indicate briefly the nature of the problem(s) as well as any suggestions you might have as to how it/they might be alleviated.

__________________________________________________________________________
__________________________________________________________________________

225
(VI) Legislation

1) What new provincial or federal legislation do you feel is needed to assist your agency/service or department in the investigation and control of fire crimes?
Listed below are a number of statements of opinion regarding the organization of arson prevention and control in this province. Please read each statement and then indicate the extent to which you agree or disagree with the statement by circling one of the numbers from -3 to +3 to the right of the statement.

-3 = strongly disagree
-2 = moderately disagree
-1 = slightly disagree
00 = neutral or no opinion
+1 = slightly agree
+2 = moderately agree
+3 = strongly agree

Because the statements are matters of opinion, there are no right or wrong answers. You will probably find that you agree with some statements and disagree with others. Your candid responses would be appreciated.

All fire crimes, regardless of dollar loss, should be thoroughly investigated............ -3 -2 -1 00 +1 +2 +3

Fire crime statistics collected by my agency are an accurate reflection of the amount of arson in my jurisdiction............ -3 -2 -1 00 +1 +2 +3

The investigation of arson is totally different from the investigation of any other crime.. -3 -2 -1 00 +1 +2 +3

There is too much duplication of effort in fire-crime investigation in this jurisdiction. -3 -2 -1 00 +1 +2 +3

A team concept (involving firefighters and police officers from start to finish) is the best way to conduct a fire crime investigation......................... -3 -2 -1 00 +1 +2 +3

"Cooperative" is the best way to describe the way agencies in this jurisdiction interact............. -3 -2 -1 00 +1 +2 +3

It makes little difference who (Fire, Police, Fire Commissioner, or some combination) conducts the entire arson investigation from start to finish. -3 -2 -1 00 +1 +2 +3
My agency/service/department regularly use the Insurance Crime Prevention Bureaux as a source of information.................. -3 -2 -1 00 +1 +2 +3

Only those cases which are serious, based on predetermined criteria, should receive a thorough fire crime investigation................ -3 -2 -1 00 +1 +2 +3

When legally possible my agency exchanges information with all other agencies.......................... -3 -2 -1 00 +1 +2 +3

I am quite confident that the provincial and federal governments are doing everything possible to support the prevention and control of arson.................. -3 -2 -1 00 +1 +2 +3

Thank you for your time and effort in filling out this questionnaire. If you have any other general comments you wish to make please include them in the space provided below or please contact me at 1-604-792-4317.
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