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ARSON INVESTIGATION IN SELECTED AMERICAN CITIES

Kuan-lou Lee

The author, who since graduation from the Chinese Central Police College in 1941 has been a member of the Chinese Police Services under the Nationalist regime, has just received a degree of Master of Science in Public Administration from the University of Southern California. He first pursued studies in this country at San Jose State College where he received an A. B. degree in police administration in 1948. His present article is based upon his thesis for his M. S. degree and describes administrative problems of arson investigation in representative U. S. cities.—EDITOR.

I

While the investigation of crimes is customarily a police function, in many local government jurisdictions arson investigation has been made the responsibility of the fire department. It is the purpose of this article to present a brief review of the organization and operation of arson investigation as practiced in selected American cities, with the objective of developing answers to the following questions.

1. Should arson investigation be a function of the police department or of the fire department?
2. Can generalizations be made concerning the factors which underlie effective arson investigation taking into account the various types of organizational patterns and the diversity of methods employed in arson investigation?

These questions are but sides of the same coin, and the answers to one necessitates a due consideration of those of the other.

It should be emphasized, however, that from the time a suspected arson case is reported, until the person accused is acquitted or convicted and the case processed through the judicial hierarchy, the police and fire departments are not the only governmental agencies concerned with arson cases.¹ Under legislation enacted by most of the states, two

1. In summing up a review of the processes of a felony prosecution, the International City Managers' Association in its book, *Municipal Police Administration*, page 23, has listed the public agencies responsible for the various stages of prosecution as follows:

Detection	Police Department
Arrest	Police Department
Detention or Bail.....	Clerk of Municipal Court
Prosecution in Preliminary Hearing.....	Municipal Prosecutor
Preliminary Hearing	Judge of Municipal Court
Detention for Grand Jury.....	County Jail—Sheriff
Bail	Clerk of Court
Prosecution before Grand Jury.....	County Prosecutor
Grand Jury	Fifteen Members
Detention	County Jail—Sheriff
Bail or Bond.....	Court of Common Pleas
Prosecution	County Prosecutor
Disposition without Trial.....	Judge—Court of Common Pleas

major responsibilities have been assigned to the state fire marshal, namely, fire prevention and fire investigation.² In many jurisdictions, authority for the inspection work carried out by the local fire department is derived from powers conferred by law upon the state fire marshal. As the result of delegation by state legislative enactment of authority for fire investigation to the local officials and the reservation of the right of the state fire marshal to "supervise and direct such investigation whenever it deems it expedient or necessary,"³ the state fire marshal or his representative seldom participates in fire investigations within the boundaries of incorporated cities in which a regular fire department is functioning, except upon the request of the local department concerned or upon special occasions.

Existing fire records indicate that the trend of arson commitment fluctuates with business and economic changes.⁴ Since industrial and business establishments are, for the most part, concentrated in the large metropolitan areas, the rate of incendiarism reflects business conditions more readily in larger cities. Therefore, the following cities have been selected for study, cities which are geographically scattered throughout the country and which may be considered representative of the entire group of cities whose population exceeds 300,000 persons:

<u>City</u>	<u>Population⁵</u>
Atlanta, Georgia	326,962
Boston, Massachusetts	788,552
Chicago, Illinois	3,631,825
Cincinnati, Ohio	499,749
Dallas, Texas	432,805
Denver, Colorado	322,412
Detroit, Michigan	1,837,610
Los Angeles, California	1,954,036
Minneapolis, Minnesota	517,410

Trial by Jury.....	Twelve Members
Sentence after Conviction.....	Judge—Court of Common Pleas
Probation	Probation Officers
Execution of Sentence.....	Penal and Correctional Institution
Parole	State Board of Clemency
Pardon	Governor

The criminal procedures as applied in the American cities are very much the same, even though the names of the agencies concerned may not be identical.

2. The activities of the State Fire Marshal's office of the State of California are largely confined to "fire prevention work, to foster, promote and develop ways and means of protecting life and property against fire and panic."

3. Laws of Ohio, Section 324.

4. *Municipal Fire Administration*. International City Managers' Association, Chicago, 1946, p. 28.

5. These figures are taken from the United States Census Bureau's report, July, 1950.

<u>City</u>	<u>Population</u>
New Orleans, Louisiana	568,407
New York, New York	7,841,610
Philadelphia, Pennsylvania	1,931,334
San Francisco, California	760,439
Seattle, Washington	462,981
St. Louis, Missouri	852,253
St. Paul, Minnesota	310,155
Washington, D. C.	792,234

II

The organization or unit responsible for arson investigation in these seventeen key cities may be classified into four different groups. The arson unit may exist (1) in the fire department, (2) in the police department, (3) as a fire-police combined squad, and (4) in the corporation council. The details are listed and explained in Table 1.

Table 1

<u>City</u>	(1)	(2)	(3)	(4)	<u>Number of Investigators</u>
Atlanta	†				3*
Boston	*				7*
Chicago				*	5*
Cincinnati	†				3*
Dallas	†				2*
Denver	†				2*
Detroit			*		12*
Los Angeles	*				10*
Minneapolis	*				4*
New Orleans		†			All detectives
New York	†				36†
Philadelphia	†				6†
San Francisco	*				6*
St. Louis		*			4*
St. Paul	†				2*
Washington, D. C.	†				35†

*Specific unit or personnel dealing with with arson exclusively.

†No specific squad particularly set up or personnel assigned for arson investigation exclusively; such unit concerned performs a wide range of duties besides arson investigation.

Among these four groups, there are two different types of organization: (1) That which has a specific arson unit or squad; and (2) that in which arson investigation is carried on by the entire membership of the fire or police department. The former type of organization deals

with arson investigation exclusively; while the latter type merely performs fire investigation as a part-time responsibility in addition to a wide range of other duties.

As Table 1 shows, the unit responsible for arson investigation exists in the fire department in thirteen out of these seventeen key cities, two of them in the police department, one police-fire combined squad, and one in the corporation council. Under the latter arrangement, the investigators of the arson squad are the police and fire officers detailed to the squad and serving under the command of a lawyer on the staff of the corporation council. In only seven out of these seventeen cities have there been organized specific squads dealing solely with arson investigation; in the rest of them, arson investigation is but one among a group routine activities carried out by the fire prevention or the detective division.

With a few exceptions, it is a general practice in those cities surveyed that if the arson squad is located within the police department, the detective unit assumes charge of its activities; on the other hand, if it is found in the municipal fire department, the squad is placed under the control of the fire prevention division. The seven arson squads listed above as being organized for specific purpose are operated on a twenty-four hour basis so that they can take action at any time of the day or night.

The officers responsible for arson investigation are usually taken from the regular or uniformed force and assigned to their special duties by department head upon the recommendation of the chief of the division which is responsible for arson investigation. In most cities the departmental rules and regulations provide that officers selected for arson work can be returned to their regular fire department duties at the discretion of the appointing authority!

The difficulties attendant to the selection of persons possessing the unique combination of training, experience, and personal qualifications required for successful arson investigation have been clearly stated in the International City Managers' Association's book entitled *Municipal Fire Administration*.⁶ The qualifications established for the position of arson investigator should differ from those specified for policemen or firemen and should be more stringent. The importance of the possession of special knowledge for the satisfactory performance of arson

6. Three qualifications have been advocated by this book: "Firstly, he should be a fire protection engineer . . . with fire fighting experience . . . Secondly, he should have the talents of a good detective . . . Thirdly, he should have legal training and experience as a trial lawyer . . ."

investigation has not been generally appreciated and emphasized, and the special training programs for arson investigators have not been developed and conducted until recent years in an orderly and systematic fashion. The majority of the cities studied make no effort to recruit arson investigation personnel possessing special qualifications, but merely secure officers who have been selected for regular duties on the force. Today, however, there appears to be a definite trend toward setting up definite qualifications for the recruitment of arson investigators. Cincinnati and Philadelphia have done so, and Minneapolis is moving in this direction. On the state level, more attention has been paid to the processes of such recruitment and selection than on the local level. For instance, the Commonwealth of Massachusetts has taken the lead in this respect, and requirements for police detective inspector in the division of fire prevention of the state department of public safety have been set up and entrance examination have been given since about 1933.⁷ A number of state fire marshals' offices have adopted Massachusetts' lead. In 1949 the Arson Department of the National Board of Fire Underwriters assisted the Fire Marshal of Ohio in the preparation of examination questions for arson investigators and deputy fire marshals. By and large, the qualifications established for the position of arson investigator in the various state fire marshals' offices may be grouped under four general headings.

1. *General Education.* High school graduates possessing special training in engineering, chemistry, or law courses are preferred.
2. *Experience.* A specified number of years experience (in Massachusetts, three) in a particular type of fire service work or experience in the conduct of criminal investigation.
3. *Special Knowledge.* A thorough knowledge of fire prevention laws and ordinances, of rules and regulations issued by the office of fire marshal is usually required.
4. *Physical Requirements and Age Limits.* These, for the most part, are the same as those specified for the regular policemen or firemen.

The salary scale for the arson investigators in these seventeen key cities range from \$3,200 to \$5,699 per year, the average compensation being around \$4,000. In one city the arson investigators of the city fire department earn approximately \$3,800 a year; while the investigators employed by the State Fire Marshal's Office and engaged in conducting investigations in same geographical area receive \$4,480 to

7. Fire Marshals' Section, *Year Book and Proceedings of Annual Meeting*, National Fire Protection Association, Boston, 1933, p. 19.

\$5,640 annually plus expenses. This marked difference in compensation constitutes perhaps a factor detrimental to the efficiency and morale of the arson investigators serving in the city department. Actually, the arson investigators in most of these cities are merely experienced firemen or policemen who draw the top salary in their wage classification bracket, and who are detailed or assigned to this particular job. Unless a special classification is designated for such service, there seems to be little hope of raising the salary scale or of securing better qualified personnel.

It is believed that an "arson investigator should not be asked to take less than \$3,600 per year plus his expenses of operation and subsistence when away from his home."⁸ An executive in an insurance company investigative office recently declared: "The success of an arson investigation is dependent upon the quality of the personnel who conduct the investigation, when arson investigation is poorly conducted, it would be well to consider the advisability of paying better salaries and employing men who are properly qualified to do the work."

In the past, facilities for the exchange of information among the men in the field of arson investigation, and for the systematic pooling of their knowledge and experience have been meager. During 1945 a short course for the training of arson investigators entitled an "Arson Investigators' Seminar" was developed at Purdue University, Lafayette, Indiana. Since that time, this instruction program has been carried on annually, and by 1950, 1,085 persons had attended, persons performing work directly or indirectly related to arson investigation and drawn from all parts of the country and from abroad. This program places special emphasis upon the technical problems and the procedures of arson investigation which are of the utmost importance to the investigators on the job. The main objectives of the seminar, according to Professor J. L. Lingo, Director of the Public Safety Institute of Purdue University, are "to promote higher standards for the selection and training of persons engaged in the field of arson investigation and to develop more effective and uniform methods and techniques which can be used in the investigation of arson and kindred crimes."⁹

Of the six annual seminars which have been held since 1945, the distribution of attendance by type of organization represented is shown in Table 2.¹⁰ This distribution indicates one interesting fact, namely,

8. Letter of A. Bruce Bielaski to the Director of Fire Marshals, State of Virginia, June 23, 1948.

9. Letter of J. L. Lingo to the writer, June 26, 1950.

10. These figures are derived from the data furnished by Professor J. L. Lingo of the Public Safety Institute of Purdue University, Lafayette, Indiana.

that at the local level, the ratio of persons from city fire departments in attendance to those from police departments is approximately 4 to 1.

Table 2

Arson Squads	14
City Fire Departments	425
City Police Departments	89
County Police Departments.....	1
County Sheriff's Departments.....	1
State Police	65
State Crime Laboratories.....	3
State Fire Marshal's Offices.....	169
Insurance Companies	77
Fire Investigation Organizations.....	71
Industries	33
Federal Agencies	43
Others	94
Total.....	<hr/> 1085

With regard to investigative methods, there are two general sets of procedures employed in initiating an arson investigation.

1. The unit responsible for arson work may begin an investigation acting upon an order issued by the chief in response to a fire report upon which a notation of "suspicious origin" or "cause undetermined" has been made. In other words, unless the fire seemed to be of suspicious origin or of a questionable nature in the opinion of the company officers who responded to the alarm, no action will be taken. Therefore, the responsibility for detecting arson in such cases rests almost entirely upon the regular fire company personnel present at the scene of the fire.

2. The arson squad or the responsible officer goes to investigate at once upon the call of the Captain or chief responding to a fire if he finds any evidence leading to the belief that the fire is of suspicious origin. And even though there is no call from the commanding officer on the fire scene, the arson squad responds to all fires that develop into a second alarm or more, or to each case where someone is injured or killed at fire.

The first practice is usually followed by those units not having a specific arson squad or an officer assigned exclusively for these duties. The second practice has become an operational routine where there is an arson squad.

In connection with the first set of procedures several factors need to be considered. The first one concerns the accuracy of the judgment as to the fire's cause as reported by the fire company. According to the usual established procedures the firemen's first concern upon arrival

at the scene of a fire is to rescue endangered persons and to prevent loss of life. Secondly, they seek to extinguish the conflagration. And lastly, the determination of the cause of the fire occupies their attention. Without in any way detracting from the zeal and bravery with which many firemen perform their tasks, one must recognize that those who possess the training and experience needed to enable them to accurately assess the causes of the larger and more complex fires are indeed few in number.

Secondly, certain types of evidence such as fingerprints, footprints, odors, etc., may be diluted or destroyed after a certain length of time due to weather conditions. This possibility should be considered, because if the investigation is delayed until the suspicious fire is reported through customary channels, the opportunities to preserve properly such evidence are greatly diminished. Thirdly, if the determination of the cause of fires is to be left to the fire companies, and if the fire investigation then is to be delayed as the result of office routine, will the fire department still be in a position to do a better job of arson investigation than the police department?

Fundamentally related to the various problems of arson investigation is the ratio of incendiary fires to the total number of fires which occur in the selected cities. An analysis of the causes of store fires which occurred during the fifteen year period from January 1930 to April 1946, made by the National Fire Protection Association indicates that of the total of 6,209 fires, 135 were due to incendiary causes or of suspicious origin, a number constituting approximately 2.15 per cent.¹¹ Since the economic and business conditions of the post-war years have been more prosperous than those of the period covered by this study, it is reasonable to conclude that the percentage of incendiary fires in recent years will be somewhat less. According to the available fire records for the year 1949, the ratio of the incendiary fires to total fires which occurred in nine key cities varies from .03 to 1.85 per cent.¹² Since each of these cities prepares

11. National Fire Protection Association, *Must Stores Burn?* N. F. P. A., Boston, 1946, p. 48.

12. The following data are based upon the annual reports for 1949 of the fire departments in the cities concerned:

City	Total Fires	Incendiary or Suspicious Fires	Percentage
Atlanta	4,836	73	1.47
Boston	3,812	36	.94
Cincinnati	3,230	43	1.31
Detroit	7,101	130	1.82
New York	44,407	394	.89
Philadelphia	11,530	33	.30
Los Angeles	12,214	227	1.85
San Francisco	7,308	39	.55
St. Paul	3,719	1	.03

its statistics based upon a somewhat different frame of reference, the reliability of these figures on incendiary fires is open to serious question. Furthermore, "Municipal officials who report they have no incendiary fire problems are for most part fooling themselves, they merely do not make an investigation sufficient enough to show whether or not their fires are of suspicious character. Whenever fires are thoroughly investigated, incendiary fires may often be found to constitute the principal fire problem of the city."¹³ This factor may also explain why the city of Los Angeles reported the highest percentage of the entire group, 1.85, when at the same time maintaining a highly efficient arson bureau. On the other hand, the city of Philadelphia reported its incendiary fires at 0.3 per cent yet recorded 6,604 out of a total 11,530 fires as "cause undetermined."¹⁴ These statistics serve to indicate that the Los Angeles law enforcement officials are more investigation conscious.

After examining more than 200 heterogeneous forms used for arson investigation and reviewing the great variety of arson statistics presented in the reports of the selected cities the writer was forced to conclude that today the record systems employed resemble those in use in 1938 when Nolting observed that "there are as many record keeping procedures as there are fire departments."¹⁵ The lack of uniformity of arson records and statistics has made impossible the inter-city comparison of the efficiency of arson investigation.

13. *Municipal Fire Administration*, op. cit., pp. 525-526.

14. In the 1949's report of Committee on Incendiary and Arson of the National Board of Fire Underwriters, the following statement is found: "In the course of an investigation into the conduct of affairs in Philadelphia, indictments have been returned against certain deputy fire marshals and their assistants, eight in all. In the two trials held so far, the defendants have been convicted of extortion or receiving bribes."

15. DeWayne E. Noltin, *A Model Record and Reporting System for Fire Departments*, Public Administration Service, Chicago, 1938, Forward.

(To be concluded in September-October issue)