Mass Emergencies 1 (1976) 153–158
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INCENDIARISM: AN OVERVIEW AND AN APPRAISAL

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SUMMARY

This report [1] summarizes the conclusions reached by members of the Committee on Fire Research of the Commission on Sociotechnical Systems, National Research Council and by experts in the field of arson and incendiarism who were in attendance at a Conference on Arson and Incendiarism, held at the National Academy of Sciences on July 29–30, 1975. It was the firm conclusion of the Committee on Fire Research that a symposium on incendiarism should be held within the next 10 to 12 months at the National Academy of Sciences. The symposium should: (1) review the state of the art of detection, investigation, and prevention of incendiarism; (2) stress the pursuit of knowledge in areas singled out in this report as deficient; (3) review action programs in related areas; and (4) emphasize behavioral interfaces with other segments of the problem.

Background

Long a subject of concern to the fire community in general and to the Committee on Fire Research in particular [2], incendiarism (especially its most visible manifestation – arson) has proved intractable as a study topic and unwieldy as a focus for interdisciplinary examination. Uninformed though we might feel regarding some aspects of combustion, of fire development, and even of fire suppression, we are by contrast almost illiterate regarding most important facets of incendiarism, and simply ignorant as to most behavioral factors. Statistics are at best conflicting; ar worst they are false if not falsified. Jurisdictional disputes are the rule, and even innocuous speculation (much less the making of pronouncements) is shunned by the medical profession. While investigative methodology is making some progress, most other areas are not. As a result, the proliferating arson-oriented meetings tend to involve the same people saying the same things to each other. Pursuit of the "why?" of the problem continues to languish.

Hence this attempt to bring together the three major professions in the field – behavioral (medical), suppression (fire chiefs), and criminological (arson investigators). It is time to ask ourselves whether or not we really understand anything about arson and incendiarism. Can we get quantitative about it, or can we just continue to be descriptive? What are the stumbling blocks of fire suppression people and of arson investigators and of behavioral people? Are the data good or bad, and is there any hope for upgrading? Are the data really

*The author served as Chairman of the National Academy of Sciences Conference on Arson and Incendiarism, held July 29–30, 1975 at Washington, D.C. Members of the committee and conference participants are listed at the end of the summary report.

slanted as by calling arson deaths something other than murder? Who should be trained to do what and how?

Finally, as we explored the problem areas we concluded that, while a small gathering to assess the situation was necessary, timely, and feasible, we could not be certain that a major National Academy of Sciences symposium on the subject was to be viewed so sanguinely. Hence, the second and practical question: should we recommend a major symposium and, if so, when, where, and of what scope?

Findings

As a result of some 17 hours of discussion within the span of only 28 hours, a number of responses to the foregoing can be formulated. The following pages reflect the papers, the comments, and the debates [3, 4]. The general statements enjoy broad if not fully unanimous support; some of the more detailed remarks juxtapose several -- at times divergent – points of view.

Perception of "incendiarism" by various groups and subgroups of people covers an almost incredibly wide range. Webster simply equates it with "arson," whereas others broaden it to include innocent playing with matches. It would seem appropriate, therefore, to promulgate an agreed-upon definition or series of definitions in order to facilitate unambiguous communication and then to form action programs appropriately. In this paper we use "incendiarism" in the broadest possible sense and restrict "arson" to the classical usage of setting fires for gain or malice.

This lack of focus tends to obscure the true or perceivable cost of incendiarism, because the attribution of origin of fire events is ambiguous. There rarely surfaces in the awareness of the public the fact that a vast number of fires go listed as "of undetermined origin" or, worse yet, "unknown." Terminology itself is a stumbling block, but even conservatively lumping together arson, potential arson, probable incendiarism, and fires of undetermined origin, we can come up with a total of about half the fires in the United States, for a total damage of 5 to 6 billion dollars per year. This total, which seems valid as a general summation although not subject to strict audit at the moment, would make incendiarism (certainly) or arson (very probably) the single largest source of unwanted fires in the United States or perhaps in the world. This fact, too, is obscured in the public view by the more customary quotation of the figure for "definitely arson" losses; itself a large and provocative total, it still is not so gripping a statistic as the likely 50 percent just cited. By whatever yardstick, arson is on the upswing; yet public awareness of arson is low, and public motivation to reduce the total is even lower.

Apathy is not the precise term to describe this attitude, if we are to believe the polls conducted on similar topics. Nobody is really unconcerned about arson; they all agree that it is a problem that needs work. They just believe somebody else is working on it.

Within the public safety community (police, fire, and related programs) there is again a considerable variation of points of view. Law enforcement officials at all levels seem prone to regard arson as the fire departments' problem. Ambivalence in the fire service itself has not helped clear this up. Among others, the motives for passing the buck include the desire to have better statistics (and hence public image) about one's own group, the need to cut budgets, and the desire to avoid tackling a messy problem. Listing of major crimes by the Federal Bureau of Investigation does not include all felonies in the mandatory section of the statistics program; hence arson (a felony) and arson-related fire deaths (murder) do not necessarily reflect poorly on either group. Such shirking of responsibility does not contribute to the solution. We note that the most classically, unequivocally heinous crimes – arson and treason – receive scant attention by data people.

It is in the budgetary field that reduction of

incendiarism can run into problems within the fire community itself. Most major fire department budgets are controlled by the fire suppression forces. Manpower costs are likely to run to 90 percent of such budgets, and when decisions are made on additional hardware and reduced manpower, arson bureaus are frequent victims. In various cases cited, there has been total uniformity as to consequence: reduce arson investigators and investigations and watch arson increase at once.

Facilitation of investigation of the source or origin of a given fire is an inhibition on optimal suppression of going fires. The reflex of the first firefighters on the scene is to put out the fire, not to preserve evidence. We cannot urge firefighters to ignore threats to life, or likely fire expansion, but it would appear that modification of procedures (and of relevant training) would be in order.

The role of fire prevention in reduction of incendiarism appears to be largely in the educational field, with the general public and particularly with juveniles. Our culture tends to make fire in general attractive, whether it be blowing out the birthday candles or helping Daddy start the barbecue, not to mention spectator events such as bonfires, rallies, pyrotechnics, or running fire apparatus. Respect for fire and its potential is an often neglected educational topic.

Fire marshals in many cities and states are charged with both prevention and investigation; in many cases they report to the fire chief, who tends to be oriented toward fire suppression. Even when this is not the case, the dichotomy risks being dysfunctional. However set up, the marshal tends to concentrate on arson investigation, and it is here that the system has the greatest potential for failure. Conflicting laws and division of responsibility, coupled with manpower and operating budget cuts, can lead to drastic neglect of the crime of arson, of its investigation and prevention, and of the public measures required to cope with it.

Investigation of the origin of fires is a basic requirement. In some large cities such checks are routine; in rural areas, particularly those served by suppression-oriented volunteers, arson investigation devolves onto state-level authorities, meaning usually too little and too late. In every case cited, vigorous and consistent investigations led to reduced incidence of arson, whereas reduction of the investigative staff was followed by an increase in arson-attributable loss.

Insurance-supported arson investigators functioned well, but that structure has long since been disestablished. Some insurance-sponsored work continues, but it appears that only publicly funded programs can develop major impact from now on. A full systems analysis relating loss, suppression, and investigation costs and other important factors is urgently needed if prevention and control of incendiarism is to progress. There are perhaps 6,000 arson investigators in the United States today; how many is "enough," and how should they be used?

From the point of view of the medical profession, incendiarism is perhaps less structured overall, although more minutely described. Hospitals suffer from the same problem as do fire suppression forces: arson calls reduce availability of forces and delay responses. They also need to foresee and cope with internal arson and carelessness and childish (or senile) acts.

Behavioral aspects, however, take the lead in demanding medical attention to incendiarism. An extremely broad grouping of people who light fires or cause them to be lit are generally accepted as being motivated at least in part by emotional problems or mental deficiencies. The general state of knowledge in such matters is relatively undeveloped. Research has not had the benefit of large samples, and virtually all of the samples studied have been selective; that is, the patients or inmates were already diagnosed as "arsonists," or some related term has been used. There is thus a presenting need to explore the social, cultural, demographic, value-judgment, and attitudinal profiles of people in-

volved with set fires and the epidemiology of the acts. A major problem impeding communication among researchers is taxonomy; even the structures partly accepted so far do not cover such obvious cases as the person who hires the actual arsonist. There is still disagreement over whether or not an incendiarist is in some way "sick." For many, setting fires is a final-type action, not a means to an end; for others, it is quite obviously a part of movement toward a goal. For some, punishment or its threat is a deterrent; for others, the "reward" of a successful fire-setting may be enough to tend toward terminating such conduct.

Consensus on Findings

Within the formulation in the foregoing paragraphs, we find a consensus in the following areas:

Data:
- Terminology is not uniform.
- Collection forms and practice are not coordinated.
- Collation is rudimentary.
- Interpretation is subject to question.
- Dissemination is unstructured.

Training:
- Content of training material is reasonably understood.
- Need for training is not fully documented.
- Levels of need are widely accepted.
- Funding of training programs is spotty.

Laboratories:
- Crime laboratories are overworked.
- Arson laboratories could fill some gaps.
- Gaps are not yet documented.

Staffing:
- Arson investigators are needed at all levels.
- Optimum numbers have not been defined.
- Relationships between investigators and other public safety people are not well defined.
- Where staffing declines, arson increases.
- Where investigation (leading to indictments, arrests, trials, and some convictions) rises, arson declines.

Research:
- The great void is in the behavioral area. A full-level professional systems analysis (including cost–benefit study) is sorely needed, in order to eliminate undesirable intuitive judgmental factors.

Major *disagreement* persists as to these points:
- Delivery of arson investigation services outside major municipal environments – how and who.
- Police and fire department boundaries in incendiarism affairs.
- Mental "sickness" matters as related to incendiarism, as a decision point.
- The overall action program mandated by our understanding of the problem and the conflicting performances of major actors in the system.

An Incendiarism Symposium in 1976?

Responses of the conferees to the direct "yes or no" question of holding a symposium ranged from "yes" to "no", with a strong showing of "maybe's" in the center or more likely on the edges. Negative voices stressed the point that the state of the art is well exposed to technical people in numerous events, such as classes for arson investigators. They felt that another introspective gathering would be pointless.

On the other hand, many people who are uneasy about lack of structuring of the problem and of research in the area of incendiarism felt that a major symposium under prestigious aegis could only serve for good.

Qualified observations stressed the need for continuity (periodic discipline-oriented conferences), analysis (small problem-oriented study groups), and relevance to actions inside and outside the incendiarism area (new federal

agency programs in fire and law enforcement, for example). Some uncertainty as to the role and mission of the National Academy of Sciences in technical areas was also evident among invited participants.

It is the firm conclusion of the Committee on Fire Research that the very uncertainties cited serve to underscore the need for a properly pitched conference on incendiarism within the next 10 to 12 months at the National Academy of Sciences in Washington. That symposium should:

- Review the state of the art of detection, investigation, and prevention of incendiarism in a depth not attainable in our one and a half-hour sessions per discipline;
- Review action programs in related areas;
- Stress pursuit of knowledge in areas singled out here as deficient; and
- Emphasize behavioral interfaces with other segments of the problem.

Funding, staffing, and solicitation of participation should be undertaken at once by the National Academy of Sciences, using the Committee on Fire Research as a pivotal executive but non-exclusive group.

NOTES

1 The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This report has been reviewed by a group other than the author, according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

The activities of the Committee on Fire Research are supported by the National Bureau of Standards, National Science Foundation, Defense Civil Preparedness Agency, and U.S. Forest Service. Supplemental funding for the conference reported herein was provided by the National Bureau of Standards.

The National Research Council was established in 1916 by the National Academy of Sciences to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and of advising the federal government. The Council operates in accordance with general policies determined by the Academy by authority of its Congressional Charter of 1863, which establishes the Academy as a private, non-profitmaking, self-governing membership corporation. Administered jointly by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine (all three of which operate under the charter of the National Academy of Sciences), the Council is their principal agency for the conduct of their services to the government, the public, and the scientific and engineering communities.

2 The Academy's Committee on Fire Research, with Dr. Nelson T. Grisamore as its Executive Secretary, consists of Carl W. Walters, M.D., Harvard Medical School (Committee Chairman), J.S. Barrows, Colorado State University, Dr. William J. Christian, Underwriters Laboratories, Inc., Professor Irving N. Einhorn, University of Utah, Dr. Robert M. Fristrim, Applied Physics Laboratory, Dr. Leonard Marks, University of Maryland (conference co-chairman), Dr. Ann W. Phillips, Smoke, Fire and Burn Foundation, Gordon W. Shorter, National Research Council of Canada, Richard E. Stevens, National Fire Protection Association, and James W. Kerr, Defense Civil Preparedness Agency (Liaison members of the committee and conference chairman).

3 Conference speakers in the *Fire Chiefs' Panel* included Chief E. Stanley Hawkins, Tulsa, Oklahoma (Panel Chairman), and panelists Dan J. Carpenter, Fire Administrator and Chief Fire Marshal, Charlotte, North Carolina, and Alcus Greer, Assistant Chief and Fire Marshal, Houston, Texas.

The *Behavioral Panel* was chaired by Dr. Walter Moretz, George Mason University with Dr. Nils Wiklund of Lund, Sweden serving as panelist.

John E. Struerwald, St. Peters, Missouri was Chairman of the *Arson Investigator Panel* with Robert E. May, Department of Law Enforcement, State of Illinois and Lt. Williams R. Rucinski, Department of State Police, East Lansing, Michigan as panelists.

4 Conference participants were: Chief George Alexander, Fairfax County Fire and Rescue Service, Fairfax, Virginia; Dr. Irwin Benjamin, Chief, Fire Research Section, Building Research Division, National Bureau of Standards, Washington, D.C.; Chief John P. Breen, D.C. Fire Department, Washington, D.C.; Dexter Bullard, Jr., M.D., Rockville, Maryland; Robert E. Carter, Supervisor, Fire Training Services, State Department of Education, Richmond, Virginia; Dan Econ, Director, Investigation,Service, Property Loss Research Bureau, Chicago, Illinois; Professor Irving N. Einhorn, Flammability Research Center, University of Utah, Salt Lake City, Utah; Donald Flinn, International Association of Fire Chiefs, Washington D.C.; David J. Icove, Knoxville, Tennessee; Eugene L. Jewell, Chief, Arson Bureau, Division State Fire Marshal, Columbus Ohio; Dr. Bernard Levin, Assistant to the Director, Center for Fire Research, National Bureau of Standards, Washington, D.C.; Dr. Robert S. Levine, Associate Director for Fire Science, National Bureau of Standards, Washington, D.C. 20234;

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