

# Arson: A Diagnostic Study

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Arson is a socially costly, complex, and little-studied phenomenon in America. Fire setting, or incendiarism, is on the increase, and it costs America billions of dollars and an estimated 1,000 deaths and 10,000 injuries annually. In 1978 there were a reported 557,000 structural and vehicle fires of incendiary or suspicious origin, costing over a billion dollars. If one considers half the unknown-origin fires as incendiary, the cost rises to more than a billion and half dollars.<sup>1</sup> Arson is difficult to investigate, difficult to prosecute, and difficult to research. It is looming as an increasingly important social problem.

## Review of the Literature

Generally in law-enforcement studies, if there are no readily apparent rational or economic motives, crimes tend to be regarded as falling in the "psychological" category, even though there may be many psychological motives underlying an ostensibly economic crime, and even a hired arsonist may have psychological motives.<sup>2</sup>

In psychiatric research, however, distinctions are often made between motivational arson (in which there is a conscious reason for the arson, that is, revenge, money, etc.) and motiveless arson (pyromania). Pyromania is an old diagnostic concept, popularized in the last century as a form of criminal insanity characterized by a motiveless, impulsive act of fire setting. In one of the few large-scale studies of fire setters in North America, Lewis and Yarnell<sup>3</sup> described the pyromaniacs in their sample phenomenologically:

The reasons for the fires are unknown. The act is so little their own that they feel no responsibility for the crime . . . these offenders are able to give a classical description of the irresistible impulse. They describe the mounting tensions, the restlessness, the urge for motion, the conversion symptoms . . . and the gradual merging of their identity into a state of unreality. Then the fires are set.

The pyromaniacs included in their study (approximately 40 to 60 percent) presumably ran the diagnostic gamut.

Robbins and Robbins,<sup>4</sup> in commenting on the lack of diagnostic clarity in this group in pyromania, pointed out the diagnostic disparities in the literature on delinquency and pyromania<sup>5-7</sup> and concluded that "pyromania is merely a descriptive term in the same sense as alcoholism . . . has no mean-

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ing psychiatrically and is a catchall term which includes the entire spectrum of psychiatric disorders."

Now, however, pyromania has been included as an official diagnosis of the Diagnostic and Statistical Manual III<sup>8</sup> as a disorder of impulse control. Its essential features are recurrent failure to resist impulses to set fires and intense fascination with setting fires and seeing them burn. Other diagnostic criteria for pyromania include lack of economic, social, or political motivation and that the behavior is not the product of an organic mental disorder, schizophrenia, antisocial personality disorder, or conduct disorder. Thus looking back at Lewis and Yarnell's large series, pyromania would seem to be a small but diagnostically special group.

Alcohol has long been implicated in fire setting, although often there is no distinction between alcoholism as a disease process in the individual and intoxication at the time of the arson. Beer in 1871<sup>9</sup> found 47 percent of his series alcoholic. Hurley and Monahan<sup>10</sup> found 46 percent intoxicated at the time of their arson, and of these 44 percent were alcoholics. Other British studies<sup>11-13</sup> have been curiously silent on the relationship between alcohol and fire setting. In Lewis and Yarnell's series 20 percent of the women and 35 to 60 percent of the men were "known to have used alcohol to excess."<sup>3</sup> Fifty five percent of the Inciardi's paroled arsonists<sup>14</sup> had been "problem drinkers." The relationship between alcohol and fire setting appears to be important and needs further clarification.

Studies of the psychopathology of arsonists are relatively rare and plagued by methodological problems. Lewis and Yarnell's 1951 series<sup>3</sup> was previously alluded to. They studied 1,145 arsonists by reviewing hospital and court clinic records where available, and found diagnostic differences between males and females: 20 percent of the males were found to be psychotic (half, schizophrenic), and 32 percent of the females psychotic. Forty eight percent of the males and 68 percent of the females were seen as retarded. Lewis and Yarnell believed, looking over the diagnostic aspects of their series, that schizophrenia had been very underrepresented. There were few other studies in the literature of diagnostic import. In Europe and the United Kingdom several studies suggested a significant percentage of "psychotic overlay"<sup>12</sup> (a history of psychotic symptoms or features) or frank mental illness.<sup>13-15</sup>

Much has been written about the underlying motives of arsonists. Theoretical interest in the motivational underpinnings of fire setting goes back to European writings of the nineteenth century, where arson was regarded as the province of retarded adolescent females who were servants undergoing puberty.<sup>3</sup> Freud regarded enuresis and fire setting as masturbatory equivalents,<sup>16</sup> and some small uncontrolled studies of children linked both enuresis and sexual dysfunction to fire setting.<sup>17</sup> The research picture, however, is not clear.

Clearer links between fire setting and sexual excitement, masturbatory behavior, and sexual fantasies have been observed in a small number of

cases.<sup>3,18</sup> Even law enforcement agencies frequently and routinely report observations of the behavior of onlookers at a fire, looking for evidence of sexual excitation or strange behavior. Other workers rightly point out that "when 70 percent of arsonists are either psychotic or mentally defective, it is not surprising that sexual difficulties are found."<sup>4</sup>

Other theoretical writers, notably Fenichel<sup>19</sup> implicate aggressive or sadistic impulses in fire setting. Lewis and Yarnell<sup>3</sup> intriguingly referred to a "universal element" of revenge in their major series. They classified the psychologically motivated arsonist as follows:

- A. Reaction against a social order they believe is operating against their interests
- B. To wreak vengeance against an employer
- C. Revenge for injured vanity
- D. Jealous rage reaction
- E. An opportunity to perform heroic endeavors as a fire fighter

There have been many classification systems but none that adequately encompass the range of motives in a useful way. Research studies have shed little light because of methodological problems of studying such an intangible problem. The authors, by studying a series of arsonists, attempt to clarify some of the diagnostic imprecision in this area and to test the hypothesis that aggression plays an active role in fire setting behavior.

### **Method**

Twenty-six consecutive pretrial arsonists referred by the Court to Bridgewater State Hospital, a maximum security hospital, were studied through the use of psychiatric examination, psychological testing, and a protocol of questions. The subjects were all males referred by the criminal courts of Massachusetts for competency and criminal responsibility evaluations on a pretrial basis. They were referred to the maximum security prison because of a cited need for strict security. Psychiatric examinations were conducted by the principal author, using Feighner research diagnostic criteria.<sup>20</sup> In addition to administration of the Minnesota Multiphasic Personality Inventory, a questionnaire was administered that gathered demographic, psychiatric, and criminal background data and systematically explored the circumstances surrounding the act of arson.

### **Results**

Demographically the group was somewhat older than other reported studies, the average age being 28.5 (range 17 to 56). All but one were Caucasian, and only three of the 26 (11.5 percent) were married. Regarding the rest of the marital picture, 18 of the 26 were single (69.2 percent), and five either divorced or separated (19.2 percent). Educational achievement was somewhat low, and the average number of grades completed (including special education) was 9.7 years for the 22 cases for which information was available (range 0 to 17 years).

Consistent with the nature of the referred population, 77 percent of the 26 cases had a history of hospitalization, with an average of 3.5 admissions for the 20 previously hospitalized cases. Looking at the criminal history of the population, a history of offenses was divided into violent, property, and other nonviolent offenses. Of the 50 percent of the cases (13) for whom a past criminal record was reported, there were an average of 0.7 violent crimes and 2.4 non-violent offenses per arsonist. Only one of the arsonists had a history of a sexual offense, and only one of the arsonists identified himself as a homosexual.

Another feature explored in the history of the arsonists had to do with the number of arsonists who, just prior to the act of fire-setting, either were engaged in some form of treatment with a mental health professional or an agency, or who had sought such help and had been rejected. Twenty one of the 26 cases appeared to fall in one of these two categories. Fourteen cases of the 26, for one reason or another, had been involved in treatment that had been discontinued, had been lost to follow-up, or tried to obtain treatment and for some reason had been unsuccessful. Seven of the 26 cases (27 percent), in fact, were involved in some form of treatment at the time of the arson.

### Diagnosis

Table 1 shows all the primary and secondary diagnoses made, for a total of 36. Beside the percentages cited for the various specific diagnostic categories, a total of 9 of the 36 (25 percent) were describable as psychotic, consisting of the schizophrenics, an antisocial personality with secondary schizophrenia, a manic-depressive psychotic, and an organic brain syndrome with psychosis. Of the subpopulation identified as mentally retarded, the average IQ for the four cases for whom intellectual testing was available was 66.8.

TABLE 1. Primary and Secondary Diagnoses in Arson (N=26)

Diagnosis	Primary	Secondary	Total
Schizophrenia	6 (23.1%)	1	7 (19.4%)
Antisocial personality	4 (15.4%)	0	4 (11.1%)
MR/OBS	5 (11.2%)	2	7 (19.4%)
Alcoholism	6 (23.1%)	6	12 (33.3%)
Drug dependence	1	1	2 (6.5%)
Affective disorder			
Mania	1	0	1
Depression	1	0	1
Personality disorder	1	0	1
No disorder	1	—	1
	<u>26</u>	<u>10</u>	<u>36</u>

Table 2 identifies (for each diagnostic group) whether the individuals were intoxicated at the time of the arson with either alcohol or drugs. One can see from the table that intoxication played a much greater role in antisocial personalities and in the group whose primary diagnosis was

TABLE 2. Intoxication in Arsonists (N=26)

Diagnostic Group	No.	Intoxicated		Both	Total**
		Alcohol	Drug		
Schizophrenia	7*	2	0	0	2 (28%)
Antisocial personality	3	2	0	1	3 (100%)
MR/OBS	4	1	0	0	1 (25%)
Alcoholism	6	3	0	3	6 (100%)
Other	6	2	1	1	4 (67%)
	26	10 (38.5%)	1	5 (19.2%)	16 (61.5%)

\* One antisocial personality (primary) was clinically schizophrenic at the time of the arson and was placed in the schizophrenia category for Tables 2, 3, and 4.

\*\*Percentage of the diagnostic group intoxicated.

alcoholism. For the most part, in the antisocial personality and alcoholic group the level of intoxication was severe, as well as in the organic brain syndrome, the drug-dependent personality, the depressive, and the case identified as having no mental illness.

An examination of the MMPI scale scores for the 15 subjects to whom the MMPI was administered reveals a preponderance of scales 8, 4, and 9. The modal profile for the group was 8, 4, 9 with F elevated as well. Average F score for the group was 71. The sum of F plus 4 plus 9 was 213.

TABLE 3. Emotional Significance to the Arsonist of the Property Burned

Diagnostic Group	No.	Emotionally		
		Own Property	Significant Property	Unrelated Property
Schizophrenia	7	0	3	4
Antisocial personality	3	0	1	2
MR/OBS	4	0	2	2
Alcoholism	5	2	1	2
Other	5	2	1	2
	24*	4	8	12 (50% of total)

\*Information was unavailable for two cases.

### Significance of Burned Property

Table 3 classifies the arsons according to whether the arsonists' own property (such as their home) was burned, whether the property burned had some emotional significance to the arsonist (for example, the home of a parent or loved one), or was emotionally and legally unrelated to the arsonists. Half the arsonists for whom such information was available burned property that was either their own or had some emotional significance to them.

### Motivation

Table 4, according to the diagnostic categories and for the 19 cases for which information was available, lists certain identified motives for each diagnostic category. None of the arsonists appeared to have an economic or criminal motive except one case in which a delusional arsonist, believing his

TABLE 4. Motives Underlying Arson

Diagnostic Group	No.*	Conflict Situation (Revenge)		External vs. Internal Objectives		Total Motives**
		Authority Figure	Non-Authority (Peer)	Instrumental	Intrinsic	
Schizophrenia	7	1	2	5	2	10
Antisocial personality	1	1	0	0	0	1
MR/OBS	3	0	2	0	1	3
Alcoholism	4	2	0	1	1	4
Other	4	0	2	0	2	4
	19	4	6	6	6	22

\* Data were available for 19 of the 26 cases.

\*\* Within the schizophrenic group, multiple motives were present.

grandmother to be a vampire bat, killed her and later on burned the house to destroy the evidence of the act. The acts of arson were examined from a contextual standpoint and divided according to whether the arsonist was in conflict with either an authority figure or a non-authority figure (the "revenge" group), whether the act of arson could be regarded as related to some functional objective (instrumental), or whether there were no discernible external objectives or the context did not suggest a conflict situation (the intrinsic group).

There are more stated motives than there were patients because in some cases dual motives were evident. For example, one case classified as schizophrenic, in a hotel fire, described intrinsically satisfying sequellae of lighting the fire (he was feeling quite angry and violent) and on a superficial level stated that he was attempting to motivate himself into leaving the hotel because he was experiencing a severe conflict. In another case, also classified as schizophrenic, a man set a hotel fire for a delusional reason but also had a more ulterior and pragmatic motive of getting himself returned to a state hospital. Another schizophrenic who lit a fire in unrelated property was in conflict with the legal system but, at the same time, had an extensive history of actions designed to secure help for himself. It can be seen from inspection of this table that 45 percent (10) of the motives involved revenge, and 27 percent (6) of the stated motives were ascribable to instrumental and 27 percent (6) to intrinsic motives.

### Recidivism

Of the 26 cases, 10 (38 percent) had a prior history of one or more acts of fire-setting. Half had one prior fire setting, three had set between 2 and 5 previous fires, and two of the arsonists had set greater than 5 fires previously. Half the recidivists were either alcoholic or mentally retarded, and the other half were in the schizophrenic, antisocial, and other group. However, of the total of 46 fires set by the recidivist group, the majority were set by either alcoholics or intoxicated retardates.

In looking at the 46 previous acts of arson represented by the 10 recidivists, there was a total of only 16 prior arrests or convictions. Of these 16 prior arrests or convictions, eight were accounted for by one arsonist who

had set one previous fire. Thus a subgroup of 10 recidivists, with a total of 45 prior arsons, had a history of only eight prior arrests and convictions.

Looking at the motivations of the recidivists in a manner similar to Tables 3 and 4, 8 of the 10 recidivists (80 percent) set fires in property that was unrelated. The underlying motivations appeared to be equally divided between revenge, instrumental motives, and intrinsic motives.

### **Discussion**

The major thrust of this study was a careful diagnostic look at a series of consecutively referred arsonists, using consistently applied research diagnostic criteria. There appear to be very few carefully crafted diagnostic studies of arson in North America and none in which the author has actually evaluated the arsonists. The study confirmed the role of schizophrenia, antisocial personality disorder, and mental retardation, in addition to confirming alcoholism as a diagnostic entity in pathological fire setting and clarifying the nature of intoxication as a major contributing factor. Of interest was the emergence of other diagnostic entities, such as drug and personality disorder, organic brain syndrome, and the minimal role that affective illnesses play, especially mania.

The diagnostic results are difficult to compare with other studies because of the differences in methodology and the highly selective nature of the population studied. While Lewis and Yarnell found an incidence of 10 percent of schizophrenia in their series, they also thought that schizophrenia was probably very much underrated. Studies from Europe and the United Kingdom suggested similar percentages of schizophrenia as well as psychosis in general. A look at the effects of intoxication on the various diagnostic groups suggests that the relatively "sicker" subjects in our sample did not need the disinhibition of alcohol or drugs to set fires. Conversely, the antisocial personalities and the diagnosed alcoholics typically were grossly intoxicated at the time of their fire setting. While there are a fair number of repetitive arsonists in the sample (38 percent), there was not a single case diagnosable under DSM III as "pyromania."

Since this study was completed, it has become easier to appreciate the difficulty of distinguishing between sexual and aggressive motives. As mentioned earlier, arson has classically been regarded as a sexual offense, not only within psychiatric and criminal circles but also in law-enforcement circles. One must wonder where the "classic" sexually motivated arsonist has gone. In earlier studies there were unequivocal observations of arsonists who derived a great deal of excitement and intrinsic satisfaction that could be interpreted as sexual, to the extent of obvious sexual excitement and occasionally masturbation to orgasm during a fire. These observations are fairly old, however.

A rigorous review of affective states of the arsonists and the circumstances surrounding the arsons in this study revealed little or no sexual excitement or tension, no remarkable sexual frustration or rejection, and no

overt behavior suggestive of sexual excitement. On the contrary, there appeared to be a preponderance of contextual issues suggesting conflict, revenge, and aggressive or retaliative motives. There is a fair amount of evidence to support the hypothesis that aggression was a major element underlying the fire setting in this series. There is a heavy history of prior criminal offenses, typically with small numbers of violent offenses (direct expressions of aggression) and a much higher incidence of nonviolent or destructive property offenses (suggestive of indirect aggression).<sup>13</sup> Further, the MMPIs in this series were read "blind" and the commentaries were highly suggestive of a great level of hostility or aggressiveness that often was expressed indirectly.

A 1968 study by Rice<sup>21</sup> also throws additional light on the clinical correlates of the high F-scale elevations noted in our study. He identified two groups of patients at the University of Wisconsin Medical Center who were hospitalized for psychiatric disorders. One group all showed F-scale elevations on their admission MMPI protocols beyond 16 raw-score points; the other scored between 3 and 13 points. He found the very high F scores correlated with a variety of acting-out patterns, primarily involving aggression directed toward the environment or toward themselves. This relationship between F-scale elevation and aggressive characteristics was particularly clear in the male patients. Among females, there were fewer instances of lack of control or explicit acting upon these impulses and greater evidence of hostility in their projections on the Rorschach. The very high F plus 4 plus 9 scales<sup>22</sup> also suggest an extremely aggressive group.

Methodologically, this study is a very difficult one from which to generalize. The population was highly select, having been screened by psychiatric court clinics and identified as a population in need of strict security. There are no data describing the incidence of arson referrals to the mental health system or the incidence of arson convictions during the same time period. Further, with such a small sample, one must wonder whether the entire range of arson has, in fact, been sampled. Other studies indicate this is probably not so. Many of these objections were overcome by the large series studied by Lewis and Yarnell in 1951.<sup>3</sup> Methodological problems also were serious in that study. The criteria for selection were unusual, inconsistent, and unclear. Diagnostic criteria were unclear and most likely varied from location to location. In addition, many cases were not congruent in time, and some of them appeared to date from many years prior to 1951. It is equally difficult to make cross-cultural comparisons of arson, but most of the studies on this subject were accomplished in Europe and the United Kingdom, where diagnostic criteria and sociocultural conditions were very different from our own.

The interesting part of the present study has to do with the underlying motivations of the fire setters. Nearly 50 percent of these fire setters burned property that was either their own or had some emotional significance to them (contrary to previous studies<sup>3</sup>), but it was difficult to ascertain their



“true” motives. Motivation in fire setting has been regarded as a complex multilevel problem,<sup>23</sup> and much is inferred from psychological or contextual data. By any measure, conflict situations produced approximately half the fire-setting incidents in our study, suggesting a new perspective: perhaps there are functional or instrumental reasons (outside criminal or economic) underlying some fire setting that are not easily classified as revenge, excitement, etc. The schizophrenic group was characterized as having motives at a number of levels, instrumental as well as intrinsically satisfying motives. Also, the schizophrenics had some very “ordinary” as well as unusual motives. This supports Virkunen’s notion<sup>24</sup> that schizophrenics’ motives in lighting fires are often quite the same as normals’, his study suggesting hatred and revenge as common underlying factors in arson. Other studies,<sup>3</sup> when discussing motives, often regarded delusions as motives or reasons in and of themselves. In point of fact, delusions are not motives *per se*. Delusional schizophrenics who often set fires are caught in the same contextual and situational variables that normals are. They set fires for discernible instrumental reasons and/or intrinsic satisfactions that may not relate to the content of their delusions.

All the hotel fires in this study were set by schizophrenics who were deluded, but who nevertheless also had discernibly “ordinary” and understandable motives. These related to conflict resolution, help, or attention, as well as intrinsic motives more difficult to ferret out.

The question of recidivism was interesting in this study for several reasons. It is not surprising that a large proportion of recidivists in this study typically set fires to property that was unrelated to them in any way. But they also set fires on a very sporadic basis, usually within the context of a situational crisis, which is a very important point to be made about this group.<sup>3</sup> Additionally, of the 46 prior fires set by the recidivist group, the vast majority were accounted for by people diagnosed as either primary or secondary alcoholics, highlighting the importance of alcohol as a contributing factor in chronic or repetitive arson.

Even more surprising, in further analyzing this group, was the fact that they represent an extremely *underprosecuted* group. The group setting 45 prior arsons were only arrested eight prior times. These individuals were known to various authorities and generally were shunted from the criminal justice to the youth services or to the mental health systems. This has very important implications for the control, supervision, and management of this identified recidivistic group.

Further exploration of how the arsonists fared in the hands of youth services and the Department of Mental Health, especially the recent history of the group, reveals some surprising data. Over half the total sampled had been involved with mental health and social service agencies just prior to their act of fire setting and either were rejected or lost to follow-up. Further, an additional seven cases were in treatment with various agencies at the time they lit their fires. Clearly, while all authorities regard arsonists as a

overt behavior suggestive of sexual excitement. On the contrary, there appeared to be a preponderance of contextual issues suggesting conflict, revenge, and aggressive or retaliative motives. There is a fair amount of evidence to support the hypothesis that aggression was a major element underlying the fire setting in this series. There is a heavy history of prior criminal offenses, typically with small numbers of violent offenses (direct expressions of aggression) and a much higher incidence of nonviolent or destructive property offenses (suggestive of indirect aggression).<sup>13</sup> Further, the MMPIs in this series were read "blind" and the commentaries were highly suggestive of a great level of hostility or aggressiveness that often was expressed indirectly.

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difficult group to deal with, this group of known arsonists (half of whom were recidivists) is by any measure a group that should be dealt with. Such statistics dramatically point up the problems in the delivery of mental health services and long-term management of serious pathology. None of this group was hospitalized at the time of their arson, and none had a history of having been found criminally insane for an act of arson.<sup>25</sup> It is difficult to adequately explain the inability or unwillingness of mental health agencies to serve those who were in contact. It is, however, a problem clearly deserving of intensive follow-up.

While many states have compulsory out-patient treatment features in their commitment or NGRI statutes, Massachusetts does not. In addition, Massachusetts is undergoing a relatively rapid "de-institutionalization" era, and it has been apparent that community services have not in any way caught up to the demand for appropriate aftercare and follow-up. In one of our most dramatic cases, one of the subjects was locked in a virtual struggle with a state hospital to remain. He was actively extruded only to return to sleep on the grounds on several occasions. Finally, hospital security personnel dropped him off in a bad section of Boston ("Combat Zone") whereupon, in a delusional state, he lit a major hotel fire.

Such cases emphasize the need for more careful and planned de-institutionalization and the need for sophisticated community treatment and follow-up mechanisms, not only within mental health circles but also with appropriate legislation. Such planning must allow for supervision and control of identified high-risk groups of mentally ill offenders over a long period of time. Arsonists must be recognized as a dangerous and relatively pathological group with a need for control, limit setting and scrupulous long-term supervision and follow-up in the community. Other commentators have cited the need for rational limit setting and supervision.<sup>26-28</sup> This study, among other things, points to the tremendous need to control, monitor, and supervise the long-term treatment of this special group.

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