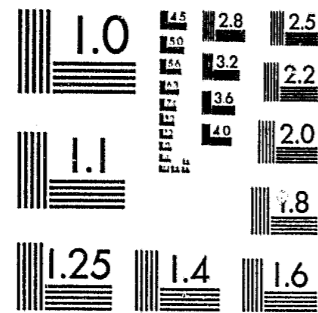


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National Institute of Justice
United States Department of Justice
Washington, D. C. 20531

12/2/85

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS • INCORPORATED



"MANAGING ARSON CONTROL SYSTEMS"
A STUDY OF ARSON AND ANTI-ARSON
EFFORTS IN A SELECTED SAMPLE OF
JURISDICTIONS

VOLUME V
APPENDIXES

Prepared For

National Institute of Justice
U.S. Department of Justice

Under Grant Award 79-NI-AX-0119

By
Hugh C. McClees
Andrew J. Decker
Daniel J. Carpenter

30 November 1982

International Association of Fire Chiefs
Washington, D.C.

In cooperation with the International Association
of Chiefs of Police
Gaithersburg, Maryland

Ryland Research, Inc.
Santa Barbara, California

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A NOTE TO READERS

This volume is in preliminary draft form. Numerous editorial and typographical errors are therefore present. While the validity of the substance of the research is unaffected, the author's regret that limits in project resources do not presently permit the draft to be revised. We trust that its readers will be able to cope with the report's deficiencies and find its research of value.

U.S. Department of Justice
National Institute of Justice

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VOLUME V
APPENDIXES

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COMPARISON OF PROPERTY LOSS BY PROPERTY CLASS BY CITY

5.0.1

APPENDIX 5.0

FREQUENCY DISTRIBUTION

OF ERROR CODES

5.0-1

NFPA 901 CODES FOR
MOBILE PROPERTIES

- 1 Passenger
- 2 Trucks
- 3 Rail
- 4 Water
- 5 Heavy Equipment
- 6 Dumpsters
- 7 Other

Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

City 17

Property Class	\$ Loss	# of Incidents	# of Incidents Investigated
1	0	1	1
1	1-99	1	1
1	Missing	1	1
1	100-999	3	3
1	1000-9999	10	10
2	10000+	1	1
2	100-999	1	1
2	1000-9999	1	1
Public	0	1	1
Public	1-99	1	1
Public	10000+	2	2
Public	1000-9999	1	0
Missing	Missing	1	0
Storage	10000+	3	3
Storage	Missing	1	1
Storage	1000-9999	2	2
Industry	10000-9999	1	1
Education	10000+	1	1
Manufactor	10000+	3	2
Institution	1000-9999	1	1
Residential	10000+	12	11
Residential	Missing	1	1
Residential	100-999	2	2
Residential	1000-9999	32	32
Store/Office	10000+	4	4
Store/Office	Missing	1	1
Store/Office	1000-9999	2	2
Spec. Property	0	3	2
Spec. Property	1-99	1	0
Spec. Property	10000+	1	0
Spec. Property	1000-9999	11	0

Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

<u>City 24</u>		# of Incidents	# of Incidents Investigated
Property Class	\$ Loss		
1	1-99	6	0
1	10000+	2	1
1	100-999	7	0
1	1000-9999	13	1
2	1-99	2	1
2	10000+	1	0
2	100-999	1	0
2	1000-9999	1	1
Public	1-99	1	1
Public	Missing	1	1
Public	100-999	1	1
Storage	10000+	1	1
Storage	100-999	3	2
Education	1-99	1	1
Education	10000+	2	2
Education	1000-9999	1	1
Manufactor	100-999	1	0
Manufactor	1000-9999	1	1
Residential	0	1	1
Residential	1-99	13	8
Residential	10000+	11	10
Residential	100-999	13	11
Residential	1000-9999	10	6
Store/Office	1-99	1	1
Store/Office	10000+	1	1
Store/Office	100-999	3	3
Spec. Property	0	3	2
Spec. Property	1-99	5	5
Spec. Property	10000+	4	4
Spec. Property	100-999	2	1
Spec. Property	1000-9999	4	4
			72

Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

<u>City 33</u>		# of Incidents	# of Incidents Investigated
Property Class.	\$ Loss		
1	0	1	0
1	1-99	3	0
1	10000+	1	1
1	100-999	10	5
1	1000-9999	6	6
2	1-99	1	1
2	100-999	1	1
2	1000-9999	4	4
6	10000+	1	0
7	0	2	0
Public	10000+	2	2
Public	100-999	1	1
Public	1000-9999	1	1
Missing	Missing	1	0
Missing	100-999	1	1
Storage	10000+	1	1
Storage	100-999	3	2
Storage	1000-9999	1	1
Education	1-99	1	1
Education	100-999	2	2
Manufactor	100-999	2	2
Manufactor	1000-9999	2	1
Institution	1-99	2	1
Institution	100-999	1	1
Residential	0	1	0
Residential	1-99	6	4
Residential	10000+	7	6
Residential	100-999	19	14
Residential	1000-9999	13	11
Store/Office	1-99	3	0
Store/Office	10000+	1	1
Store/Office	100-999	1	1
Spec. Property	0	5	0
Spec. Property	1-99	3	2
Spec. Property	10000+	1	1
Spec. Property	100-999	2	2

Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

City 44		# of Incidents	# of Incidents Investigated
Property Class	\$ Loss		
1	0	1	1
1	100-999	14	5
1	1000-9999	5	4
2	100-999	3	2
9	1-99	1	1
Public	1-99	2	2
Public	10000+	1	0
Public	Missing	1	1
Public	100-999	1	0
Storage	1-99	1	1
Storage	100-999	2	2
Storage	1000-9999	1	1
Education	0	1	1
Education	1-99	3	3
Education	100-999	1	1
Education	1000-9999	3	3
Manufactor	1-99	1	1
Manufactor	10000+	1	1
Institution	1-99	1	0
Institution	100-999	2	2
Residential	0	2	2
Residential	1-99	8	5
Residential	10000+	3	3
Residential	100-999	13	9
Residential	10000-9999	8	6
Store/Office	0	1	1
Store/Office	1-99	1	1
Store/Office	100-999	1	1
Store/Office	1000-9999	1	1
Spec. Property	0	4	2
Spec. Property	1-99	4	3
Spec. Property	100-999	11	8
Spec. Property	1000-9999	3	3

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Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

City 57		# of Incidents	# of Incidents Investigated
Property Class	\$ Loss		
1	0	2	0
1	1-99	5	1
1	100-999	10	3
1	1000-9999	9	7
2	0	1	1
7	0	7	2
7	1-99	1	0
Storage	1-99	1	1
Storage	100-999	2	0
Storage	1000-9999	4	3
Manufactor	0	1	0
Manufactor	100-999	1	1
Residential	0	8	6
Residential	1-99	1	0
Residential	10000+	4	3
Residential	100-999	9	4
Residential	1000-9999	12	9
Store/Office	0	2	2
Store/Office	10000+	1	1
Store/Office	100-999	1	1
Spec. Property	0	18	4
Spec. Property	10000+	3	3
Spec. Property	100-999	5	3
Spec. Property	1000-9999	5	3

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Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

City 60		# of Incidents	# of Incidents Investigated
Property Class	\$ Loss		
0	1-99	1	1
1	1-99	3	3
1	10000+	1	1
1	100-999	6	1
1	1000-9999	3	2
2	10000+	1	1
2	100-999	1	0
2	1000-9999	3	3
7	0	2	0
7	100-999	1	0
9	10000+	1	0
Public	10000+	1	1
Public	100-999	2	2
Public	1000-9999	1	1
Storage	100-999	1	0
Industry	0	2	0
Education	1-99	1	1
Education	100-999	1	1
Manufactor	1-99	1	0
Manufactor	100-999	1	0
Manufactor	1000-9999	2	1
Institution	1-99	1	1
Residential	0	3	1
Residential	1-99	8	2
Residential	10000+	9	7
Residential	100-999	7	5
Residential	1000-9999	10	9
Store/Office	10000+	3	3
Spec. Property	0	30	0
Spec. Property	1-99	5	1
Spec. Property	100-999	1	1
Spec. Property	1000-9999	2	0
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Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

City 70		# of Incidents	# of Incidents Investigated
Property Class	\$ Loss		
1	1-99	3	2
1	100-999	2	2
1	1000-9999	4	4
3	1-99	1	1
Public	100-999	1	1
Public	1000-9999	1	1
Storage	0	1	1
Storage	1-99	1	1
Storage	1000-9999	1	1
Education	0	3	3
Education	1-99	1	1
Education	10000+	2	2
Education	1000-9999	1	1
Manufactor	1-99	1	1
Manufactor	10000+	2	2
Institution	0	1	1
Institution	1-99	1	1
Institution	100-999	1	1
Residential	0	5	4
Residential	1-99	15	15
Residential	10000+	9	9
Residential	Missing	2	1
Residential	100-999	23	23
Residential	1000-9999	21	20
Store/Office	1-99	1	1
Store/Office	100-999	1	1
Store/Office	1000-9999	1	1
Spec. Property	0	1	1
Spec. Property	1-99	2	2
Spec. Property	100-999	4	4
Spec. Property	1000-9999	8	8
		116	

Number of Investigations
Compared to Number of Incidents
by Property Class and Dollar
Loss Range for Each City

		<u>City 87</u>	
Property Class	\$ Loss	# of Incidents	# of Incidents Investigated
0	Missing	1	0
1	1-99	6	5
1	100-999	8	3
1	1000-9999	9	7
4	10000+	1	1
6	100-999	1	1
7	0	1	1
7	1-99	3	2
7	100-999	2	1
Public	1-99	1	1
Public	10000+	2	2
Public	1000-9999	1	1
Missing	1-99	1	1
Missing	10000+	1	1
Storage	1-99	1	1
Storage	10000+	1	1
Storage	10000-9999	6	6
Education	1-99	3	3
Education	100-999	1	1
Manufacturer	10000+	1	1
Manufacturer	100-999	3	2
Manufacturer	1000-9999	3	3
Institution	1-99	1	1
Institution	100-999	2	2
Residential	1-99	4	2
Residential	10000+	12	12
Residential	100-999	16	13
Residential	1000-9999	9	6
Store/Office	100-999	3	3
Spec. Property	0	5	5
Spec. Property	1-99	1	0
Spec. Property	10000+	2	2
Spec. Property	100-999	5	4

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Fire Officer Deficiency Codes

- 1 Fails to file report
- 2 Fails to request fire investigator in violation of S.O.P.
- 3 Fails to determine cause and origin and no investigation request
- 4 Cause code miscoded
- 5 Fails to satisfactorily complete report
- 6 Contaminates fire scene
- 7 Releases fire scene prematurely
- 8 Notifies/requests investigator late
- 9 Overhauls scene prematurely
- 10 Delay in requesting fire investigation
- 11 Allows witnesses/suspects to leave

Cause and Origin Investigation Deficiency Codes

- 21 Unable to determine cause and origin
- 22 Cause and origin determination flawed
- 23 Corpus Delicti not established in report
- 24 Insufficient physical evidence gathered/referenced in report
- 25 Loses control of fire scene
- 26 Mishandles request for arson investigation
- 27 Violates S.O.P. - doesn't investigate/not available
- 28 Analysis equipment not used/analysis not done
- 29 Interviews not conducted in timely manner
- 30 Allows suspects/complaining witnesses to leave scene before interview
- 31 Area not canvassed for witnesses, evidence
- 32 No photographs of scene
- 33 Files/records not checked for tie-ins
- 34 Report not made accurately/missing significant points
- 35 Investigators disagree in record
- 36 Reports not updated
- 37 Cause not classified as arson - no police follow-up

Arson Investigation Deficiency Codes

- 41 Violates suspect's rights
- 42 Violates search and seizure
- 43 Insufficient testimonial evidence
- 44 Insufficient physical evidence
- 45 Inadequate follow-up to cause and origin
- 46 Physical evidence contaminated
- 47 Insufficient documentary evidence
- 48 Changes not filed in a timely fashion
- 49 Suspect flees
- 50 Motive not established
- 51 Suspects not interviewed
- 52 Report not updated/supplemented

Associated Deficiency Codes For
Cases Investigated - All Sites

ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
	77	77	11.938	11.938
02	1	78	0.155	12.093
020405	1	79	0.155	12.248
0229	2	81	0.310	12.558
04	2	83	0.310	12.868
042143	1	84	0.155	13.023
042251	1	85	0.155	13.178
042434	2	87	0.310	13.488
0426	1	88	0.155	13.643
042634	1	89	0.155	13.798
042651	2	91	0.310	14.109
0431	1	92	0.155	14.264
043334	1	93	0.155	14.419
043436	1	94	0.155	14.574
0443	1	95	0.155	14.729
05	5	100	0.775	15.504
0529	2	102	0.310	15.814
052933	1	103	0.155	15.969
053436	1	104	0.155	16.124
054344	1	105	0.155	16.279
054551	1	106	0.155	16.434
0551	1	107	0.155	16.589
06	2	109	0.310	16.899
060835	1	110	0.155	17.054
062249	1	111	0.155	17.209
0825	1	112	0.155	17.364
0826	1	113	0.155	17.519
0831	1	114	0.155	17.674
084643	1	115	0.155	17.829
09	1	116	0.155	17.984
0922	1	117	0.155	18.140
092235	1	118	0.155	18.295
0924	1	119	0.155	18.450
092522	1	120	0.155	18.605
092629	1	121	0.155	18.760
0933	2	123	0.310	19.070
1029	1	124	0.155	19.225
103648	1	125	0.155	19.380
11	2	127	0.310	19.690
1134	1	128	0.155	19.845
21	8	136	1.240	21.085
212229	1	137	0.155	21.240
2124	1	138	0.155	21.395
212429	1	139	0.155	21.550
212430	1	140	0.155	21.705
212431	2	142	0.310	22.016
212432	1	143	0.155	22.171
2129	5	148	0.775	22.946
2130	1	149	0.155	23.101
2131	1	150	0.155	23.256
213145	3	153	0.465	23.721
2132	1	154	0.155	23.876
213237	1	155	0.155	24.031
2133	1	156	0.155	24.186
213337	1	157	0.155	24.341
213345	1	158	0.155	24.496

Lases Investigated - All Sites

ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
2134	2	160	0.310	24.806
2143	1	161	0.155	24.961
2145	5	166	0.775	25.736
214551	1	167	0.155	25.891
2149	1	168	0.155	26.047
2151	2	170	0.310	26.357
22	27	197	4.186	30.543
22	1	198	0.155	30.698
2224	9	207	1.395	32.093
2224	1	208	0.155	32.248
2224	1	209	0.155	32.403
2224	1	210	0.155	32.558
22214	2	212	0.310	32.868
22215	1	213	0.155	33.023
22251	1	214	0.155	33.178
22283	1	215	0.155	33.333
22335	1	216	0.155	33.488
224	1	217	0.155	33.643
2242	1	218	0.155	33.798
2243	1	219	0.155	33.953
2264	1	220	0.155	34.109
2226	1	221	0.155	34.264
2228	1	222	0.155	34.419
2229	5	227	0.775	35.194
2229	1	228	0.155	35.349
2229	1	229	0.155	35.504
2229	1	230	0.155	35.659
2229	1	231	0.155	35.814
2229	1	232	0.155	35.969
229	1	233	0.155	36.124
229	1	234	0.155	36.279
30	3	237	0.465	36.744
30	1	238	0.155	36.899
30	1	239	0.155	37.054
30	1	240	0.155	37.209
30	2	242	0.310	37.519
30	1	243	0.155	37.674
30	1	248	0.775	38.450
30	1	249	0.155	38.605
30	1	250	0.155	38.760
30	1	251	0.155	38.915
30	1	259	1.240	40.155
30	1	260	0.155	40.310
30	1	262	0.310	40.620
30	1	263	0.155	40.775
30	1	264	0.155	40.930
30	1	269	0.775	41.705
30	3	272	0.310	42.016
30	1	273	0.155	42.171
30	1	274	0.155	42.326
30	1	275	0.155	42.481
30	1	276	0.155	42.636
30	2	278	0.155	43.101
30	1	279	0.155	43.256
30	1	280	0.155	43.411
30	1	281	0.310	43.721
30	155	43876		

Associated Deficiency Codes For
Cases Investigated - All Sites

ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
2244	2	285	0.310	44.186
224452	1	286	0.155	44.341
2245	1	287	0.155	44.496
224551	2	289	0.310	44.806
2246	1	290	0.155	44.961
224651	1	291	0.155	45.116
224851	1	292	0.155	45.271
2251	3	295	0.465	45.736
2252	1	296	0.155	45.891
23	1	297	0.155	46.047
231450	1	298	0.155	46.202
2324	1	299	0.155	46.357
232445	1	300	0.155	46.512
233051	1	301	0.155	46.667
233706	1	302	0.155	46.822
234351	1	303	0.155	46.977
234751	1	304	0.155	47.132
2348	1	305	0.155	47.287
2352	1	306	0.155	47.442
24	10	316	1.550	48.992
242629	1	317	0.155	49.147
2428	1	318	0.155	49.302
242849	1	319	0.155	49.457
242851	2	321	0.310	49.767
2429	1	322	0.155	49.922
242931	2	324	0.310	50.232
242933	1	325	0.155	50.388
242934	1	326	0.155	50.543
242945	1	327	0.155	50.698
242951	2	329	0.310	51.008
2430	1	330	0.155	51.163
2431	2	332	0.310	51.473
243133	1	333	0.155	51.628
243145	7	340	1.085	52.713
2432	3	343	0.465	53.178
2433	1	344	0.155	53.333
243334	1	345	0.155	53.488
243345	3	348	0.465	53.953
2434	1	349	0.155	54.109
243445	1	350	0.155	54.264
243552	1	351	0.155	54.419
2443	1	352	0.155	54.574
2445	2	354	0.310	54.884
2446	2	356	0.310	55.194
2449	1	357	0.155	55.349
2451	1	358	0.155	55.504
252934	1	359	0.155	55.659
26	8	367	1.240	56.899
262851	1	368	0.155	57.054
2629	2	370	0.310	57.364
263133	1	371	0.155	57.519
263145	2	373	0.310	57.829
263334	1	374	0.155	57.984
263345	1	375	0.155	58.140
263445	1	376	0.155	58.295
263451	1	377	0.155	58.450
2635	1	378	0.155	58.605

Associated Deficiency Codes For
Cases Investigated - All Sites

ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
2637	1	379	0.155	58.760
263745	1	380	0.155	58.915
264551	2	382	0.310	59.225
2646	1	383	0.155	59.380
2648	1	384	0.155	59.535
2651	1	385	0.155	59.690
27	3	388	0.465	60.155
28	2	390	0.310	60.465
283451	1	391	0.155	60.620
283545	1	392	0.155	60.775
284347	1	393	0.155	60.930
284551	1	394	0.155	61.085
29	6	400	0.930	62.016
2922	1	401	0.155	62.171
293133	1	402	0.155	62.326
293151	1	403	0.155	62.481
2932	1	404	0.155	62.636
2933	1	405	0.155	62.791
293344	1	406	0.155	62.946
293345	5	411	0.775	63.721
293351	1	412	0.155	63.876
2934	2	414	0.310	64.186
293536	1	415	0.155	64.341
293645	1	416	0.155	64.496
293651	1	417	0.155	64.651
294	1	418	0.155	64.806
294347	2	420	0.310	65.116
294451	1	421	0.155	65.271
2945	3	424	0.465	65.736
294551	1	425	0.155	65.891
2949	1	426	0.155	66.047
30	5	431	0.775	66.822
303345	2	433	0.310	67.132
303449	1	434	0.155	67.287
304344	1	435	0.155	67.442
3051	1	436	0.155	67.597
3052	1	437	0.155	67.752
31	12	449	1.860	69.612
3133	4	453	0.620	70.232
313345	1	454	0.155	70.388
3134	2	456	0.310	70.698
3145	7	463	1.085	71.783
314505	1	464	0.155	71.938
314506	1	465	0.155	72.093
3148	1	466	0.155	72.248
3149	1	467	0.155	72.403
32	3	470	0.465	72.868
323345	2	472	0.310	73.178
3234	3	475	0.465	73.643
3247	1	476	0.155	73.798
33	1	477	0.155	73.953
3334	1	478	0.155	74.109
333445	1	479	0.155	74.264
3335	1	480	0.155	74.419
333545	1	481	0.155	74.574
333645	1	482	0.155	74.729
3345	3	485	0.465	75.194

Associated Deficiency Codes For
Cases Investigated - All Sites

ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
334552	1	486	0.155	75.349
34	33	519	5.116	80.465
342651	1	520	0.155	80.620
3431	1	521	0.155	80.775
3435	1	522	0.155	80.930
3436	7	529	1.085	82.016
343643	1	530	0.155	82.171
343645	1	531	0.155	82.326
343651	2	533	0.310	82.636
3441	1	534	0.155	82.791
344347	1	535	0.155	82.946
3444	1	536	0.155	83.101
3445	6	542	0.930	84.031
344551	1	543	0.155	84.186
3446	1	544	0.155	84.341
3449	1	545	0.155	84.496
3451	3	548	0.465	84.961
3451 0	1	549	0.155	85.116
35	3	552	0.465	85.581
352345	1	553	0.155	85.736
3530	1	554	0.155	85.891
3536	1	555	0.155	86.047
3545	1	556	0.155	86.202
354551	1	557	0.155	86.357
354651	1	558	0.155	86.512
36	13	571	2.016	88.527
3645	1	572	0.155	88.682
364551	1	573	0.155	88.837
3651	1	574	0.155	88.992
3745	1	575	0.155	89.147
3751	1	576	0.155	89.302
4142	1	577	0.155	89.457
414344	1	578	0.155	89.612
4144	1	579	0.155	89.767
43	5	584	0.775	90.543
4344	4	588	0.620	91.163
4344 0	1	589	0.155	91.318
434447	2	591	0.310	91.628
434449	1	592	0.155	91.783
434551	1	593	0.155	91.938
4347	2	595	0.310	92.248
434951	1	596	0.155	92.403
4351	1	597	0.155	92.558
44	5	602	0.775	93.333
444547	1	603	0.155	93.488
4449	1	604	0.155	93.643
45	11	615	1.705	95.349
454830	1	616	0.155	95.504
4549	1	617	0.155	95.659
4551	6	623	0.930	96.589
46	3	626	0.465	97.054
47	1	627	0.155	97.209
4748	1	628	0.155	97.364
48	2	630	0.310	97.674
49	2	632	0.310	97.984
50	1	633	0.155	98.140
51	4	637	0.620	98.760
5133	1	638	0.155	98.915
52	7	645	1.085	100.000

Associated Deficiency Codes For
Cases Investigated - City 17

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
17		6	6	0.930	0.930
17	04	1	7	0.155	1.085
17	042434	1	8	0.155	1.240
17	0431	1	9	0.155	1.395
17	092522	1	10	0.155	1.550
17	212432	1	11	0.155	1.705
17	2129	1	12	0.155	1.860
17	213145	2	14	0.310	2.171
17	2132	1	15	0.155	2.326
17	213237	1	16	0.155	2.481
17	2133	1	17	0.155	2.636
17	213345	1	18	0.155	2.791
17	214551	1	19	0.155	2.946
17	22	3	22	0.465	3.411
17	2224	2	24	0.310	3.721
17	222428	1	25	0.155	3.876
17	222431	1	26	0.155	4.031
17	222434	1	27	0.155	4.186
17	222451	1	28	0.155	4.341
17	222533	1	29	0.155	4.496
17	222931	1	30	0.155	4.651
17	222945	1	31	0.155	4.806
17	2230	1	32	0.155	4.961
17	223045	1	33	0.155	5.116
17	223145	4	37	0.620	5.736
17	223245	1	38	0.155	5.891
17	2233	1	39	0.155	6.047
17	223345	1	40	0.155	6.202
17	223445	1	41	0.155	6.357
17	2235	1	42	0.155	6.512
17	223545	1	43	0.155	6.667
17	224352	1	44	0.155	6.822
17	224551	1	45	0.155	6.977
17	2252	1	46	0.155	7.132
17	231450	1	47	0.155	7.287
17	2324	1	48	0.155	7.442
17	232445	1	49	0.155	7.597

Associated Deficiency Codes For
Cases Investigated - City 17 (cont'd)

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
17	24	4	53	0.620	8.217
17	242849	1	54	0.155	8.372
17	242931	2	56	0.310	8.682
17	242945	1	57	0.155	8.837
17	242951	2	59	0.310	9.147
17	243133	1	60	0.155	9.302
17	243145	5	65	0.775	10.078
17	2432	2	67	0.310	10.388
17	2433	1	68	0.155	10.543
17	243345	2	70	0.310	10.853
17	2443	1	71	0.155	11.008
17	2445	1	72	0.155	11.163
17	2449	1	73	0.155	11.318
17	263345	1	74	0.155	11.473
17	293151	1	75	0.155	11.628
17	293344	1	76	0.155	11.783
17	293345	1	77	0.155	11.938
17	293536	1	78	0.155	12.093
17	294	1	79	0.155	12.248
17	30	1	80	0.155	12.403
17	303345	2	82	0.310	12.713
17	304344	1	83	0.155	12.868
17	31	1	84	0.155	13.023
17	313345	1	85	0.155	13.178
17	3134	2	87	0.310	13.488
17	3145	1	88	0.155	13.643
17	314505	1	89	0.155	13.798
17	314506	1	90	0.155	13.953
17	32	3	93	0.465	14.419
17	323345	1	94	0.155	14.574
17	3234	2	96	0.310	14.884
17	3247	1	97	0.155	15.039
17	352345	1	98	0.155	15.194
17	3530	1	99	0.155	15.349
17	354651	1	100	0.155	15.504
17	43	1	101	0.155	15.659
17	454830	1	102	0.155	15.814

Associated Deficiency Codes For
Cases Investigated - City 24

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
24		10	112	1.550	17.364
24	043334	1	113	0.155	17.519
24	05	2	115	0.310	17.829
24	0529	1	116	0.155	17.984
24	052933	1	117	0.155	18.140
24	054344	1	118	0.155	18.295
24	0551	1	119	0.155	18.450
24	21	1	120	0.155	18.605
24	2124	1	121	0.155	18.760
24	213145	1	122	0.155	18.915
24	2134	1	123	0.155	19.070
24	22	2	125	0.310	19.380
24	2224	1	126	0.155	19.535
24	222433	1	127	0.155	19.690
24	2231	1	128	0.155	19.845
24	2233	2	130	0.310	20.155
24	2234	1	131	0.155	20.310
24	223445	1	132	0.155	20.465
24	2235	1	133	0.155	20.620
24	242933	1	134	0.155	20.775
24	2430	1	135	0.155	20.930
24	243145	1	136	0.155	21.085
24	2445	1	137	0.155	21.240
24	252934	1	138	0.155	21.395
24	28	1	139	0.155	21.550
24	293133	1	140	0.155	21.705
24	2933	1	141	0.155	21.860
24	293345	4	145	0.620	22.481
24	293645	1	146	0.155	22.636
24	294347	1	147	0.155	22.791
24	2945	2	149	0.310	23.101
24	2949	1	150	0.155	23.256
24	30	1	151	0.155	23.411
24	31	5	156	0.775	24.186
24	3133	1	157	0.155	24.341
24	3145	1	158	0.155	24.496
24	3334	1	159	0.155	24.651
24	3449	1	160	0.155	24.806
24	4144	1	161	0.155	24.961
24	4344	3	164	0.465	25.426
24	4344 0	1	165	0.155	25.581
24	44	1	166	0.155	25.736
24	45	4	170	0.620	26.357
24	46	1	171	0.155	26.512
24	49	1	172	0.155	26.667
24	51	1	173	0.155	26.822
24	52	1	174	0.155	26.977

Associated Deficiency Codes For
Cases Investigated - City 33

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
33		4	178	0.620	27.597
33	02	1	179	0.155	27.752
33	05	1	180	0.155	27.907
33	0825	1	181	0.155	28.062
33	0826	1	182	0.155	28.217
33	0831	1	183	0.155	28.372
33	084643	1	184	0.155	28.527
33	0924	1	185	0.155	28.682
33	092629	1	186	0.155	28.837
33	1029	1	187	0.155	28.992
33	11	1	188	0.155	29.147
33	22	4	192	0.620	29.767
33	22 51	1	193	0.155	29.922
33	2224	2	195	0.310	30.233
33	222434	1	196	0.155	30.388
33	222629	1	197	0.155	30.543
33	222649	1	198	0.155	30.698
33	2229	1	199	0.155	30.853
33	222934	1	200	0.155	31.008
33	222943	1	201	0.155	31.163
33	223133	1	202	0.155	31.318
33	223143	1	203	0.155	31.473
33	2233	1	204	0.155	31.628
33	223330	1	205	0.155	31.783
33	223345	1	206	0.155	31.938
33	223351	1	207	0.155	32.093
33	223355	1	208	0.155	32.248
33	2234	2	210	0.310	32.558
33	223452	1	211	0.155	32.713
33	223633	1	212	0.155	32.868
33	2243	1	213	0.155	33.023
33	224452	1	214	0.155	33.178
33	224551	1	215	0.155	33.333
33	224651	1	216	0.155	33.488
33	2251	1	217	0.155	33.643
33	242934	1	218	0.155	33.798
33	2431	1	219	0.155	33.953
33	243552	1	220	0.155	34.109
33	26	3	223	0.465	34.574
33	2629	1	224	0.155	34.729
33	263445	1	225	0.155	34.884
33	283451	1	226	0.155	35.039
33	2932	1	227	0.155	35.194
33	293351	1	228	0.155	35.349
33	293651	1	229	0.155	35.504
33	2945	1	230	0.155	35.659
33	3052	1	231	0.155	35.814
33	3133	1	232	0.155	35.969
33	3145	2	234	0.310	36.279

Associated Deficiency Codes For
Cases Investigated - City 33 (cont'd)

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
33	34	3	237	0.465	36.744
33	342651	1	238	0.155	36.899
33	3436	1	239	0.155	37.054
33	343643	1	240	0.155	37.209
33	343651	2	242	0.310	37.519
33	3445	1	243	0.155	37.674
33	3451	1	244	0.155	37.829
33	36	2	246	0.310	38.140
33	3645	1	247	0.155	38.295
33	45	3	250	0.465	38.760
33	52	1	251	0.155	38.915

Associated Deficiency Codes For
Cases Investigated - City 44

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
44		7	258	1.085	40.000
44	05	1	259	0.155	40.155
44	0922	1	260	0.155	40.310
44	213337	1	261	0.155	40.465
44	2145	1	262	0.155	40.620
44	22	4	266	0.620	41.240
44	2226	1	267	0.155	41.395
44	222932	1	268	0.155	41.550
44	222933	1	269	0.155	41.705
44	223145	1	270	0.155	41.860
44	223237	1	271	0.155	42.016
44	2235	1	272	0.155	42.171
44	223540	1	273	0.155	42.326
44	223645	1	274	0.155	42.481
44	2244	1	275	0.155	42.636
44	233706	1	276	0.155	42.791
44	24	1	277	0.155	42.946
44	242629	1	278	0.155	43.101
44	243145	1	279	0.155	43.256
44	243345	1	280	0.155	43.411
44	26	3	283	0.465	43.876
44	263133	1	284	0.155	44.031
44	2637	1	285	0.155	44.186
44	263745	1	286	0.155	44.341
44	264551	1	287	0.155	44.496
44	2646	1	288	0.155	44.651
44	2651	1	289	0.155	44.806
44	27	2	291	0.310	45.116
44	28	1	292	0.155	45.271
44	31	1	293	0.155	45.426
44	3133	2	295	0.310	45.736
44	323345	1	296	0.155	45.891
44	3335	1	297	0.155	46.047
44	333545	1	298	0.155	46.202
44	333645	1	299	0.155	46.357
44	3345	1	300	0.155	46.512
44	334552	1	301	0.155	46.667
44	34	7	308	1.085	47.752
44	3431	1	309	0.155	47.907
44	3436	1	310	0.155	48.062
44	3444	1	311	0.155	48.217
44	3445	1	312	0.155	48.372
44	35	1	313	0.155	48.527
44	3545	1	314	0.155	48.682
44	36	4	318	0.620	49.302
44	3651	1	319	0.155	49.457
44	44	2	321	0.310	49.767
44	4449	1	322	0.155	49.922
44	45	1	323	0.155	50.078
44	4551	1	324	0.155	50.233
44	46	1	325	0.155	50.388
44	47	1	326	0.155	50.543
44	52	2	328	0.310	50.853

Associated Deficiency Codes For
Cases Investigated - City 57

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
57		3	331	0.465	51.318
57	04	1	332	0.155	51.473
57	042634	1	333	0.155	51.628
57	042651	1	334	0.155	51.783
57	043436	1	335	0.155	51.938
57	0529	1	336	0.155	52.093
57	053436	1	337	0.155	52.248
57	054551	1	338	0.155	52.403
57	0933	1	339	0.155	52.558
57	103648	1	340	0.155	52.713
57	1134	1	341	0.155	52.868
57	2224	1	342	0.155	53.023
57	2228	1	343	0.155	53.178
57	2234	1	344	0.155	53.333
57	2243	1	345	0.155	53.488
57	2251	1	346	0.155	53.643
57	242851	1	347	0.155	53.798
57	2434	1	348	0.155	53.953
57	243445	1	349	0.155	54.108
57	26	2	351	0.310	54.419
57	263334	1	352	0.155	54.574
57	263451	1	353	0.155	54.729
57	283545	1	354	0.155	54.884
57	2934	1	355	0.155	55.039
57	333445	1	356	0.155	55.194
57	34	11	367	1.705	56.899
57	3435	1	368	0.155	57.054
57	3436	2	370	0.310	57.364
57	343645	1	371	0.155	57.519
57	3441	1	372	0.155	57.674
57	3445	3	375	0.465	58.140
57	344551	1	376	0.155	58.295
57	3451	1	377	0.155	58.450
57	34510	1	378	0.155	58.605
57	35	1	379	0.155	58.760
57	36	2	381	0.310	59.070
57	364551	1	382	0.155	59.225
57	4347	1	383	0.155	59.380
57	434951	1	384	0.155	59.535
57	44	1	385	0.155	59.690
57	50	1	386	0.155	59.845

Associated Deficiency Codes For
Cases Investigated - City 60

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
60		5	391	0.775	60.620
60	020405	1	392	0.155	60.775
60	042434	1	393	0.155	60.930
60	0426	1	394	0.155	61.085
60	042651	1	395	0.155	61.240
60	06	1	396	0.155	61.395
60	062249	1	397	0.155	61.550
60	22	1	398	0.155	61.705
60	2224	2	400	0.310	62.016
60	222951	1	401	0.155	62.171
60	2233	1	402	0.155	62.326
60	2246	1	403	0.155	62.481
60	233051	1	404	0.155	62.636
60	234351	1	405	0.155	62.791
60	234751	1	406	0.155	62.946
60	243334	1	407	0.155	63.101
60	2635	1	408	0.155	63.256
60	29	1	409	0.155	63.411
60	294347	1	410	0.155	63.566
60	294451	1	411	0.155	63.721
60	34	5	416	0.775	64.496
60	3436	2	418	0.310	64.806
60	344347	1	419	0.155	64.961
60	3445	1	420	0.155	65.116
60	3451	1	421	0.155	65.271
60	36	1	422	0.155	65.426
60	414344	1	423	0.155	65.581
60	43	1	424	0.155	65.736
60	4344	1	425	0.155	65.891
60	434447	2	427	0.310	66.202
60	434449	1	428	0.155	66.357
60	434551	1	429	0.155	66.512
60	4347	1	430	0.155	66.667
60	4351	1	431	0.155	66.822
60	444547	1	432	0.155	66.977
60	45	1	433	0.155	67.132
60	4551	1	434	0.155	67.287
60	48	1	435	0.155	67.442

Associated Deficiency Codes For
Cases Investigated - City 70

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
70		28	463	4.341	71.783
70	0229	2	465	0.310	72.093
70	060835	1	466	0.155	72.248
70	09	1	467	0.155	72.403
70	092235	1	468	0.155	72.558
70	21	5	473	0.775	73.333
70	212229	1	474	0.155	73.488
70	212429	1	475	0.155	73.643
70	212430	1	476	0.155	73.798
70	212431	2	478	0.310	74.109
70	2129	3	481	0.465	74.574
70	22	6	487	0.930	75.504
70	2224	1	488	0.155	75.659
70	222445	1	489	0.155	75.814
70	222535	1	490	0.155	75.969
70	222630	1	491	0.155	76.124
70	2229	1	492	0.155	76.279
70	2230	2	494	0.310	76.589
70	223133	1	495	0.155	76.744
70	223234	1	496	0.155	76.899
70	2233	1	497	0.155	77.054
70	2234	1	498	0.155	77.209
70	223451	1	499	0.155	77.364
70	224851	1	500	0.155	77.519
70	23	1	501	0.155	77.674
70	2348	1	502	0.155	77.829
70	2352	1	503	0.155	77.984
70	24	3	506	0.465	78.450

Associated Deficiency Codes For
Cases Investigated - City 70 (cont'd)

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
70	2429	1	507	0.155	78.605
70	2431	1	508	0.155	78.760
70	2432	1	509	0.155	78.915
70	263145	2	511	0.310	79.225
70	264551	1	512	0.155	79.380
70	2648	1	513	0.155	79.535
70	29	3	516	0.465	80.000
70	30	1	517	0.155	80.155
70	303449	1	518	0.155	80.310
70	3051	1	519	0.155	80.465
70	31	2	521	0.310	80.775
70	3145	1	522	0.155	80.930
70	3149	1	523	0.155	81.085
70	33	1	524	0.155	81.240
70	3345	1	525	0.155	81.395
70	34	7	532	1.085	82.481
70	3436	1	533	0.155	82.636
70	3446	1	534	0.155	82.791
70	35	1	535	0.155	82.946
70	3536	1	536	0.155	83.101
70	354551	1	537	0.155	83.256
70	36	2	539	0.310	83.566
70	3745	1	540	0.155	83.721
70	3751	1	541	0.155	83.876
70	4142	1	542	0.155	84.031
70	43	1	543	0.155	84.186
70	4549	1	544	0.155	84.341
70	4551	3	547	0.465	84.806
70	4748	1	548	0.155	84.961
70	48	1	549	0.155	85.116
70	49	1	550	0.155	85.271
70	51	1	551	0.155	85.426

Associated Deficiency Codes For
Cases Investigated - City 87

CITY	ERRORS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
87		14	565	2.171	87.597
87	042143	1	566	0.155	87.752
87	042251	1	567	0.155	87.907
87	0443	1	568	0.155	88.062
87	05	1	569	0.155	88.217
87	06	1	570	0.155	88.372
87	0933	1	571	0.155	88.527
87	11	1	572	0.155	88.682
87	21	2	574	0.310	88.992
87	2129	1	575	0.155	89.147
87	2130	1	576	0.155	89.302
87	2131	1	577	0.155	89.457
87	2134	1	578	0.155	89.612
87	2143	1	579	0.155	89.767
87	2145	4	583	0.620	90.388
87	2149	1	584	0.155	90.543
87	2151	2	586	0.310	90.853
87	22	7	593	1.085	91.938
87	222651	1	594	0.155	92.093
87	2229	3	597	0.465	92.558
87	223051	1	598	0.155	92.713
87	2233	2	600	0.310	93.023
87	2244	1	601	0.155	93.178
87	2245	1	602	0.155	93.333
87	2251	1	603	0.155	93.488
87	24	2	605	0.310	93.798
87	2428	1	606	0.155	93.953
87	242851	1	607	0.155	94.109
87	2446	2	609	0.310	94.419
87	2451	1	610	0.155	94.574
87	262851	1	611	0.155	94.729
87	2629	1	612	0.155	94.884
87	27	1	613	0.155	95.039
87	284347	1	614	0.155	95.194
87	284551	1	615	0.155	95.349
87	29	2	617	0.310	95.659
87	2922	1	618	0.155	95.814
87	2934	1	619	0.155	95.969
87	294551	1	620	0.155	96.124
87	30	2	622	0.310	96.434
87	31	3	625	0.465	96.899
87	3145	2	627	0.310	97.209
87	3148	1	628	0.155	97.364
87	3234	1	629	0.155	97.519
87	3345	1	630	0.155	97.674
87	36	2	632	0.310	97.984
87	43	2	634	0.310	98.295
87	44	1	635	0.155	98.450
87	45	2	637	0.310	98.760
87	4551	1	638	0.155	98.915
87	46	1	639	0.155	99.070
87	51	2	641	0.310	99.380
87	5133	1	642	0.155	99.535
87	52	3	645	0.465	100.000

APPENDIX 5.1

This appendix consists of detailed treatments of the following elements in the prosecutive process, from the point of view of the issues inherent in them and their implication:

- 5.1.1 Indictments and Information
- 5.1.2 Arrests and Warrants
- 5.1.3 Rights Against Self-Incrimination: Miranda
- 5.1.4 Proceedings Before Arraignment
- 5.1.5 Arraignment
- 5.1.6 Pleas
- 5.1.7 Nolle Prosequi, dismissal, and Discontinuance
- 5.1.8 Defense of Insanity
- 5.1.9 Defense of Entrapment
- 5.1.10 Federal Anti-Arson and Related Statutes

5.1 ARSON PROSECUTIVE PROCESS

5.1.1 Indictments and Information

At the conclusion of an arson investigation, the prosecuting attorney and support personnel must consider whether to invoke criminal proceedings against the suspected perpetrator of an arson. At common law, and from early colonial American history to the present, it has been a well-established rule that a formal accusation is an essential condition precedent to a valid prosecution for a criminal defense and no criminal proceedings can be brought or instituted until a formal charge is openly made against the accused, by indictment or presentment by a grand jury or by information referred by a prosecuting attorney or by some other officer authorized by law. 41 Am. Jur. 2d, Indictments and Informations, Sec. 2.

A presentment is the notice taken by a grand jury of any offense from their own knowledge or observation without any bill of indictment being laid before them at the request of the state or commonwealth. Commonwealth v. Green, 126 Pa. 531, 17 A. 878. The presentment as a written accusation of crime is generally obsolete in the various jurisdictions of the United States. An indictment is a written accusation or charge of crime against one or more persons presented upon oath by a grand jury. 41 Am. Jur 2d, Indictments and Informations, Sec. 1. An information is a written accusation of crime

charged by a public prosecuting officer without the intervention of a grand jury. The rules governing prosecutions by information are substantially identical to those which govern prosecutions by indictment. Hepner v. United States, 213 U. S. 103; Weeks v. United States, 216 F. 292, certiorari denied 235 U. S. 697; 41 Am. Jur. 2d, Indictments and Informations, Sec. 1.

Although prosecutions may be validly instituted by information or indictment, where a state constitution provides that prosecution of felony crimes must be by presentment or indictment, such provision is binding on the courts of the state similar to the effect of the Fifth Amendment of the United States Constitution on federal courts. 41 Am. Jur. 2d, Indictments and Informations, Sec. 10. An indictment, to be valid, must be returned by a grand jury legally selected, organized, qualified and competent to act at the time the indictment is found. Crowley v. United States, 194 U. S. 161. It is the general rule, both at common law and under many of the constitutions and statutes of state jurisdictions, that in the absence of some statutory modification covering state-wide grand juries, an indictment ordinarily must be found and returned by the grand jury of the county or district in which the offense was committed. State v. Lewis, 142 N. C. 626, 55 S. E. 600; 41 Am. Jur. 2d, Indictments and Informations, Sec. 15.

An indictment is generally considered to consist of three principal elements: (1) the caption, (2) the charge, (3) the

conclusion. The caption of an indictment is the preamble which gives the history or record of the case up to the finding of the indictment. As a general matter, the caption of an indictment should show that the grand jury was of the number and qualifications required by law and that the grand jurors were impaneled for the county in which the indictment was found. 41 Am. Jur. 2d, Indictments and Informations, Sec. 44, 45. With respect to the charge recited in an indictment, it is the constitutional right of the accused under the various state constitutions and the United States Constitution to be informed of the nature and cause of the accusation that has been brought against him and to be provided with a plain statement of the charge against him. With this in mind, it is necessary that an indictment set forth the constituent elements of a criminal offense. United States v. Cruikshank, 92 U. S. 542. In many instances, state statutes prescribe either generally or in specific terms the form of indictments to be used with respect to various offenses. In most of the state jurisdictions covered by this arson study, court decisions have held that indictments which basically charge the terms and elements of the arson statute are sufficient indictments so long as they do not dispense with allegations which are essential to reasonable particularity and certainty in the description of the offense. Greller v. State, 119 Md. 61, 85 A. 954; Slack v. State, 61 Tex. Crim. 372, 136 S. W. 1073. An example of additional allegations that should be stated with reasonable particularity are allegations concerning the identification of the building,

structure, habitation or other statutorily defined matter which was burned by the accused while committing an incendiary act.

While it is necessary that an indictment set forth with particularity the facts constituting the elements of the crime against the accused, it is neither necessary nor proper in most state jurisdictions to allege evidence or disclose in the indictment or information the proof which the prosecution intends to rely upon to establish the charge. Henricks v. United States, 223 U. S. 178; People v. Mason, 184 Cal. App. 2d 317; Lyman v. State, 136 Md. 40, 1098, 548. As previously noted, there are several defenses available to an accused in resisting an arson prosecution. It is not necessary that the indictment contain allegations which negate every possible theory of innocence of the accused or all possible defenses that may be set up by the defendant; however, it has been said to be necessary where the statute prohibits an act except under conditions that the indictment alleged the circumstances for the purpose of showing that the prohibitive act constituting the crime has been done. 41 Am. Jur. 2d, Indictments and Informations, Sec. 85.

It is not uncommon as may be seen in reviewing several of the arson statutes from the study sites for a statute to denounce as an offense, two or more separate and distinct things, acts or transactions which are enumerated in the disjunctive. It is the general rule that in such a case, the accused may be charged in the indictment conjunctively and

found guilty of either one or more offenses. Similarly, it has been held to be fatal to an indictment to charge disjunctively in the words of the statute if such disjunctive pleading leaves it uncertain which of the several alternatives is meant. State v. Williams, 210 N. C. 159, 185 S. E. 661; State v. Schridber, 185 Or. 615, 205 P. 2d 149. For example, the use of the expression "and/or" in an indictment or information has been criticized in court decisions as inimical of the certainty, definitiveness and precision required in criminal proceedings. 41 Am. Jur. 2d, Indictments and Informations, Sec. 96.

It is the common law rule, generally followed in jurisdictions of this country that when an indictment charges an offense which includes within it another lesser offense, or one of the lower degree of the same general class, the accused may be convicted of the lesser offense, although acquitted of the higher offense. 41 Am. Jur. 2d, Indictments and Informations, Sec. 97.

On occasion, after an indictment has been returned or information filed, additional investigative effort may reveal that: (a) the facts indicating the offense of arson in a higher degree than pleaded in the charging instrument. (b) The names of additional defendants, accessories or principals. (c) The name of the owner of the property in jurisdictions defining arson as the burning of a building without the effective consent of the owner. (d) A corrected description of the property which the Defendant is alleged to have burned. (e) other matters going to a correct determination of venue, value,

the existence of an insurance policy, and other matters.

The question then arises concerning the power of a court or prosecuting authority to amend an indictment or information to set forth the true and correct facts. At common law, an accused could be held to answer for treason, a capital offense or a felony only under presentment or indictment of a grand jury. 41 Am. Jur. 2d, Indictment and Informations, Sec. 172. While there is some authority to the effect that certain purely formal defects could be corrected pursuant to the grand jury's consent, it is generally recognized that for practical purposes the courts have no power at common law to amend an indictment however immaterial the change might seem to be. Ex parte Vann 121, U. S. 1. In the absence of a specific state statutes, a state court has no authority to amend an indictment as to matters of substance and even the correction of purely formal defects has been held improper in some cases. In the absence of a permissive statute, amendments to correct defects or errors with respect to, for example, the name of the defendant, the name of the crime, the name of the victim, the name of the owner of property, which was the subject of the offense and other matters have been ruled improper. Watts v. State, 99 Md. 30, 57 A. 542; State v. Secton, 10 N. C. 184; 14 A.L.R. 3d 1315.

In several state jurisdictions, statutes have been enacted authorizing the amendment of indictments. Such statutes authorize amendments as to matters of substance as well as form.

See, 17 A.L.R. 3d 1208, for a review of the jurisdictions allowing such amendments. With reference to the kinds of errors which may be corrected, the statutes speak in general terms of permitting "any defect, imperfection, or omission" to be amended and corrected. People v. Shepherd, 223 Cal. App. 2d 166, 35 Cal. Rptr, 497; 17 A.L.R. 3d 1173. Notwithstanding the existence of such state enabling statutes, several state courts have held that amendments which substitute or increase the degree of crime alleged in an indictment may not be allowed as infringing upon the constitutional right of the accused to a presentment or indictment by a grand jury. Duty v. State, 54 Tex. Crim. 613, 114 S.W. 817. However, an amendment reducing the charge or providing lesser included offenses is proper. State v. Holt, 59 Ohio App. 309, 17 N.E. 2d 947. Where there exists a statute authorizing the amendment of indictments, such power may be exercised at various stages of the criminal proceeding, including before, during, and even after the trial of a case where the statute provides that an amendment can be made to an indictment at any stage of the proceeding. 41 Am. Jur. 2d, Indictments and Informations, Sec. 186. Examples of amendments of particular matters that have been allowed under state enabling statutes are as follows:

- (a) Correct name of accused. 41 Am. Jur. 2d, Indictments and Informations, Sec. 189.
- (b) Correct name or description of the victim of an offense involving violence or injury. Dye v. Sakes, 173 Ohio 442, 183 N. E. 2d 380;

41 Am. Jur. 2d, Indictments and Informations,
Sec. 190.

- (d) Amendments amplifying the description of premises constituting the subject of arson. State v. Gates, 27 Ohio Law Abstracts 302.
- (e) The place at which the offense was committed. 41 Am. Jur. 2d, Indictments and Informations, Sec. 192.
- (f) Amendments as they relate to jurisdiction or venue. 41 Am. Jur. 2d, Indictments and Informations, Sec. 193.
- (g) Amendments with respect to defendant's criminal intent, 41 Am. Jur. 2d, Indictments and Informations, Sec. 196.

Even in states which do not have enabling acts permitting amendments to indictments, the same grand jury or a different grand jury may return several indictments against the accused grounded on the same criminal act so long as the same testimony in support of the additional, separate charges has been presented to the grand jury. Where statutes permit prosecution either by information or indictment, the voluntary dismissal of an information does not prevent the subsequent indictment of the accused on the same charge. 41 Am. Jur. 2d, Indictments and Informations, Sec. 29.

The sufficiency of an indictment may be tested in many different ways. Objections to nonfundamental defects in indict-

ments ordinarily cannot be made, however, after the verdict has returned, but an objection may be made for the first time even on appeal if such defect is that the indictment fails to set forth the essential elements of the offense. 41 Am. Jur. 2d, Indictments and Informations, Sec. 278. Ordinarily, a motion to quash will be permitted with respect to those defects apparent on the record. State v. Bowman, 145 N.C. 452, 59 S.E. 74; Commonwealth v. Church, 1 pa. 105. A motion to quash an indictment must usually be made before the accused is called upon to plead to the charge on the merits. An example of the grounds which can be relied upon to file a motion to quash an indictment are as follows:

- (a) Repugnancy in the allegations of an indictment.
- (b) That the indictment does not charge the accused with an offense under the statute on which the indictment is based.
- (c) The allegation of the time of commission of the offense is fatally insufficient or defective.
- (d) That the indictment was not filed within the statutory period of limitations.
- (e) That the indictment was not endorsed with the phrase "a true bill".
- (f) Misjoinder of parties or offenses.
- (g) that the grand jury was improperly constituted, organized and impaneled.

41 Am. Jur. 2d, Indictments and Informations, Sec. 285.

5.1.2 Arrest and Warrant

After an indictment, information, sworn complaint, or other prosecutive charging instrument has been duly returned and filed, the next step is the arrest and apprehension of the person or persons named in such instruments. This particular section is concerned with (a) the arrest of persons pursuant to a warrant issued upon an indictment, information or sworn complaint and (b) the arrest without warrant of persons by a peace officer in the circumstances in which such warrantless arrest is justified.

In its most technical sense, an arrest is the taking, seizing or detaining of the person of another by touching or putting hands on him; or by any act that indicates an intention to take a person into custody and that subjects him to the actual control or will of the person making the arrest; or by the consent of the person to be arrested. Weissengoff v. Davis, 260 F.2d 16, Cert. denied, 250 U. S. 674; Hoppes v. State, 47 S. W. 2d 827 (Tex. Crim.); Alter v. Paul, 135 N.W. 2d 73 (Ohio)

To effect an arrest, there must be actual or constructive seizure or detention of the person to be arrested or his voluntary submission to custody and the restraint must be under real or pretended legal authority. 4 Am. Ju. 2d, Arrest, Sec. 1.

There can, under various authorities, be no arrest where there is no restraint or where the person sought to be arrested is not conscious of any restraint upon his person. Toledo v. Lowenberg.

131 N. E. 682 (Ohio). The fact that an officer makes a statement to an accused that he is under arrest is not sufficient to complete the arrest. Smith v. State, 153 Tex. Crim. 230, 219 S.W. 2d 454; Wyatt v. State, 120 Tex Crim. 3, 47 S.W. 2d 827. But if an officer having authority to make an arrest lays his hand upon the person or the suspect, however slightly, with the intention of taking him into custody, it is an arrest, even though the officer may be successful in stopping or holding this suspect even for an instant. If the person arrested understands that he is in the power of the arresting person and submits, it is not necessary that there be an application of actual force, a manual touching of the body, or a physical restraint that may be visible to the eye. Lee v. State, 45 Tex Crim 94, 74 S.W. 28; Christ v. McDonald, 152 O.R. 494, 52 P. 2d 655; 5 Am. Jur. 2d, Arrest, Sec. 1.

A warrant of arrest is a legal process, not a pleading, issued by competent authority, directing the arrest of a person or persons upon grounds stated therein. Cabell v. Arnold, 86 Tex. 102, 23 S.W. 645; Restatement of Torts, Sec. 123; Randolph v. Commonwealth, 145 Va. 883, 134 S.E. 544. A warrant should show on its face the facts essential to the jurisdiction of the official issuing it. The question of jurisdiction can be raised at any time and since neither the consent nor waiver can give jurisdiction, the Court will not proceed where it appears from the record that it has no authority. A warrant may be amended so as to cure minor defects such as the mis-statement of the return day, but any material alteration of a warrant of arrest

after it has been issued such as the insertion of a name by another magistrate before whom is returnable is illegal in the arrest of the person whose name is inserted cannot lawfully be made under such warrant. *Haskins v. Young*, 19 N.C. 527; 5 Am. Jur. 2d, Arrests, Sec. 7. In basic terms, a warrant is a written order directing the arrest of a person or persons issued by a court, body or official having authority to issue warrants. Restatement of Torts, Sec. 113; in re *riddle* 131 Tex. Crim. 563 (101) S.W. 2d 268.

A warrant of arrest should contain those provisions which an applicable constitution, statutes or procedural rules in a particular jurisdiction may require. Apart from any special provisions, it is generally held that a warrant is insufficient and void if on its face it fails to state facts sufficient to constitute an offense. A designation or description of the offense in the warrant is required under most statutes or procedural rules. However, the strictness required in an indictment is not essential to an arrest warrant. *Branch v. Guinn*, 242 S.W. 482 (Tex.); *Moser v. Fulk*, 237 N.C. 302 (74 S.E. 2d 729); *Owen v. State*, 58 Tex. Crim. 261, 125 S.W. 405; 5 Am. Jur. 2d, Arrests, Sec. 8. It is necessary, of course, that the warrant state and describe the identity of the person to be arrested. Arrest warrants that are issued in blank to be filled in by the police or other law enforcement personnel are a nullity.

As noted above, an arrest signifies the apprehension or detention of a person in order that he may be forthcoming to answer for an alleged crime. *Patterson v. United States*, 192

F. 2d 631, Cert. denied, 343 U.S. 951 (Tex.) To prevent illegal restraint for trivial causes, the general rule of the common law and various constitutional and statutory provisions that have been enacted since then, is that except where the gravity of the offense seems to justify an immediate arrest without a warrant or where a crime has been committed in the presence of the officer or person making the arrest, no arrest may lawfully be made until a warrant has been issued after formal charge filed with the magistrate or court having jurisdiction of the subject matter. The policy of the law concerning arrests follows the strong policy of the law concerning search warrants; all arrests are considered unreasonable per se if made without a warrant unless special or exigent circumstances appear from the record. 5 Am. Jur. 2d, Arrests, Sec. 4.

Under modern constitutional authority, a determination of probable cause for arrest and issuance of an arrest warrant must be made by a neutral and detached magistrate. In an affidavit on which a criminal arrest warrant is based, the offense need only be stated with reasonable certainty but the facts charged must constitute a criminal offense of some sort. 5 Am. Jur. 2d, Arrests, Sec. 13. Generally, an affidavit that merely states belief in the guilt of the accused is insufficient to support a warrant of arrest, the reason being that it states no fact on which the detached and neutral magistrate can make an evaluation of the existence of probable cause as is constitutionally required. Under constitutional provisions that no warrant shall be issued but upon probable cause supported by

oath or affirmation, it has been held that the protection afforded is that the inference of probable cause for arrest is to be drawn from the evidence by a neutral and detached magistrate rather than by an officer engaged in the often competitive enterprise of ferreting out crime.

Giordenello v. United States, 357 U. S. 480. On the other hand, it is held that the function of determining whether probable cause exists for an arrest is only quasi-judicial and need not be confined to strictly judicial officers and tribunals; the function can be confided to a prosecuting attorney and accordingly a requirement of probable cause supported by oath or affirmation is sufficiently complied with where the prosecuting attorney conducts a preliminary investigation upon which he files a sworn information against the party accused. Camp v. United States, 234. U. S. 91

An arrest warrant may be issued as a matter of course upon an indictment, since the grand jury's determination that probable cause exists for the indictment establishes that element for the purpose of the warrant. And where a statute requires the clerk of the court or magistrate or other authority to issue a warrant when an indictment or information is filed against a defendant not presently in custody, the duty thus imposed is ministerial and not discretionary in nature. Brown v. Hadwin, 182 Mich. 491, 148 N. W. 698; Rule 9, Federal Rules of Criminal Procedure; and 5 Am. Jur. 2d, Arrests, Sec. 16.

In order to further justify an arrest under a warrant, the peace officer executing the warrant must act in strict

compliance with the law and must make a return stating substantially all that he did within the scope of executing the warrant. 5 Am. Jur. 2d, Arrests, Sec. 17.

Ordinarily, as noted above, an arrest made without a warrant is unreasonable per se unless subject to certain well-defined exceptions. State v. Mobley, 240 N.C. 476, 83 S. E. 2d 100. Generally, under the common law, peace officers were authorized to arrest without warrant, felons and persons reasonably suspected of being felons. This was not only a right under the common law, but a duty the neglect of which might lead to the punishment of the officer in question. Baltimore & Ohio Railroad Company v. Cain, 81 Md. 87, 31 A. 801; 5 Am. Jur. 2d, Arrests, Sec. 24.

Under modern statutes and rules of criminal procedure, which to some extent codify and amend the prior common law, a peace officer may arrest a person without a warrant for a felony committed or attempted in his presence. Coverstone v. Davies, 38 Cal. 2d 315, 239 P. 2d 876; Price v. State, 227 Md. 28, 175 A. 2d 11. It is sufficient if an officer has probable cause to believe that a felony is being committed in his presence. United States v. Rabinowitz, 339 U.S. 56.

In addition, there is authority that an officer may also make an arrest without warrant when he reasonably believes the person arrested is about to commit a felony although such a belief will not justify him unless it is based on reasonable grounds. An officer may also make an arrest without warrant when he reasonably believes that the person arrested has

attempted to commit a felony. Cook v. Hastings, 150 Mich. 89, 114-N.W. 71. A peace officer is also authorized to arrest without warrant where he has reasonable cause to believe that a felony has been committed and that the person arrested is the one who committed felony. The officer is justified in making an arrest when he believes that probable cause exists to show that the person arrested committed or has committed the felony. People v. Losinger, 331 Mich. 490, 50 N.W. 2d 137; Miles v. Wright, 22 Ariz. 73, 194 P. 88. If an officer does not know the acts constituting an offense, then the offense is not being committed in his presence so as to justify an arrest without warrant. The acts must become known to the officer at the time of their commission through his sensory perception and he must infer that they constitute an offense. Even if the person arrested is in fact violating the law, the offense is not legal contemplation committed in the officer's presence so as to authorize an arrest without a warrant when the facts constituting it are incapable of being observed or are not observed until after the arrest and a search of the offender's person. 5 Am. Jur. 2d, Arrests, Sec. 31.

When an arrest without warrant is made for an offense not committed in the presence of the person arresting, the good faith of the arresting officer is not enough. Henry v. United States, 361 U.S. 98. The officer must have a real belief that the person to be arrested is guilty of a felony and that belief must be based upon reasonable grounds. Grounds strong enough

to justify such an arrest are ordinarily referred to as "probable cause" although such phrases as "reasonable cause" and "reasonable grounds" have been held to be substantial equivalents. Drapet v. United States, 358 U.S. 307. Probable cause for an arrest has been defined to be a reasonable ground of suspicion, supported by circumstances sufficiently strong in themselves to warrant a cautious man in believing the accused to be guilty. To establish probable cause, the evidence need not amount to proof of guilt or even to prima facie evidence of guilt, but it must be such as would cause a reasonable man acting in good faith to believe in the guilt of the person in question. Carroll V. United States, 267 U. S. 132; People v. Kilvington, 104 Cal. 86, 37 P. 799; People v. Ward, 226 Mich. 45 196 N.W. 971; Bock v. Cincinnati, 43 Ohio App. 257, 183 N.E. 119; Christ v. McDonald, 452 Or. 494, 52 P. 2d 655; Burke v. Howley, 179 Pa. 539, 136 Ap. 327; Thomas v. State, 163, Tex. Crim. 68, 228 S.W. S. W. 2d 791.

Where the felony was not committed in the arresting officer's presence, probable cause to believe that a felony has been committed is not sufficient in itself without probable cause to believe that the person to be arrested is the guilty party. Probable cause is not established where it is shown merely that the accused was present when the felony was committed. Mere suspicion is not enough to constitute probable cause for arrest without a warrant especially if it is a mere general suspicion. An arrest cannot be justified on the mere belief that a person has been guilty of an offense, if such belief has no foundation

in fact or has insufficient circumstances on which to rest, or if the person arresting unreasonably acts at the request of a third person who himself has only a mere suspicion of the guilt of the one arrested. Furthermore, to afford a justification, there must be not only a real belief and reasonable grounds for it, but also an opportunity to make inquiry and proper investigation into the facts. Mallory v. United States, 254 U.S. 449; Worthington v. United States, 166 F. 2d 557 (6th Cir. Court Mich.); Staples v. State, 14 Tex. App. 136; People v. Menchella, 268 Mich. 123, 255 N. W. 735. For example, in Terrones Rios v. United States, 364 U. S. 253, the United States Supreme Court stated that no probable cause for arrest existed where nothing more appeared than that the neighborhood in which a police officer saw a defendant look up and down a street and get into a cab had a reputation for "narcotics activity" and none of the officers ever had seen the defendant or had any idea of his identity. In addition, as another example, in Henry v. United States, 361 U. S. 98, the court stated that the mere fact that packages had been stolen does not make every man who carries a package subject to arrest.

Mere suspicion based on an arrested person's bad reputation and his presence in the vicinity where the crime occurred does not constitute probable cause. Adams v. State, 137 Tex. Crim. 43, 128 S. W. 2d 41; United States v. Di Re, 332 U. S. 531. Thus, the fact that the person arrested has a jail record and has admitted the previous commission of the same offense for which he was arrested does not enlarge the authority of an

officer to arrest and there is no justification for an illegal arrest without warrant. Larson v. Feeney, 196 Mich. 1, 162 N. W. 275; 5 Am. Jur. 2d, Arrests, Sec. 45.

In an arson investigation, in light of the above decisions, peace officers or fire personnel having arrest powers would not be justified in making an arrest without a warrant under the following general circumstances;

1. A person having a reputation as a "torch" is observed or reputed to have been in the general vicinity of a fire scene.
2. A person known to have been observed at previous fire scenes was also observed to be at the fire scene in question.
3. Arsonist with prior felony records observed in the vicinity of the fire scene.

The existence of "probable cause" justifying an arrest without a warrant is determined by factual and practical considerations of everyday life on which reasonable and prudent men, not legal technicians, act. Probable cause depends on the facts known at the time of the arrest to the person by whom the arrest is made from which it follows that an arrest cannot be justified by what a subsequent search discloses. In determining probable cause, all the information in the officer's possession and inferences therefrom are generally pertinent and facts may be taken into consideration that would not otherwise be admissible on the issue of guilt at trial. Draper v. United States, 358

U. S. 307; People v. Ward, 226 Mich. 45, 196 N. W. 971; Bach v. Cincinnati, 43 Ohio App. 257, 188 N. E. 119; Christ v. McDonald, 152 Or. 494, 52 P. 2d 655; People v. Hupp, 61 Cal. App. 2d 447, 143 P. 2d 84; Price v. State, 227 Md. 28, 175 A. 2d 11; Henry v. United States, 361 U. S. 98; People v. Stein, 265 Mich. 610, 251 N. W. 788. An officer is completely justified in making an arrest without a warrant when the officer knows that the person arrested is under indictment for a crime. 5 Am. Jur. 2d, Arrests, Sec. 48.

In making an arrest the arresting officer should, if the opportunity is available, make known his purpose, official capacity and the cause of the arrest. 5 Am. Jur. 2d, Arrests, Sec. 69. Where an arrest is made without a warrant, the arresting officer must generally inform the arrested person of the object and cause of his arrest, although no particular formality is required. 5 Am. Jur. 2d, Arrests, Sec. 71. After making an arrest without a warrant, an officer who has made an arrest has the authority to detain the person in custody only for such time as may reasonably be necessary to procure a legal warrant for his further detention or until a preliminary hearing of the charge against him can be had. It is the duty of the police officer on making an arrest to take the prisoner with reasonable promptness before a magistrate. In most states this is required by statute or rules of criminal procedure.

The purpose of the requirement that a prisoner be brought with reasonable promptness before a magistrate is to discourage secret police interrogation and to arraign the arrested person

before a judicial officer as quickly as possible so that he may be advised of his rights. 5 Am. Jur. 2d, Arrests, Sec. 76.

When an officer has a right to make an arrest, he may use whatever force is reasonably necessary to apprehend the offender or effect the arrest and no more. He must avoid using unnecessary force or violence. If the offender resists, however, the officer may use such force as may be required under the circumstances to overcome the resistance. What amounts to reasonable force on the part of an officer making the arrest usually depends on the facts in each particular case and the question is one for the jury. The reasonableness of the force used must be judged in light of the circumstances as they appear to the officer at the time he acted and the measure is generally considered to be that which an ordinarily prudent and intelligent person with the knowledge and in the situation of the arresting officer would have deemed necessary under the circumstances. 5 Am. Jur. 2d, Arrests, Sec. 81.

5.1.3 Rights Against Self-Incrimination: Miranda

In the course of conducting an arson investigation, whether before, during or after indictment, information or arrest, government personnel and law enforcement agents need to be aware of the scope and requirements of constitutional provisions which protect citizens against self-incrimination in certain circumstances. The Fifth Amendment to the Constitution of the United States provides that "no person. . . shall be compelled in any criminal case to be a witness against himself. . .". The source of this clause is the ancient maxim "nemo tenetur prodere", that "no man is bound to accuse himself." The Fifth Amendment protection against self-incrimination has been applied, by the United States Supreme Court through the 14th Amendment's Due Process Clause to the states. Miranda v. Arizona, 384 U. S. 436 (1966). Under the Miranda decision, as is well known to most law enforcement personnel, persons acting pursuant to governmental authority are required to advise persons being questioned in a custodial interrogation of their right to remain silent; their right to counsel; and their right to have counsel appointed for them if they are indigent. The scope of the Fifth Amendment right concerning self-incrimination has been liberally construed to prevent both compelled and coerced statements and those statements made in a context indicating a lack of voluntary, intelligent waiver of the Miranda right. U. S. v. Mahady, 512 F. 2d 521 (Pa. 575); U. S. v. Skolek,

474 F. 2d 582 (Col. 1973); State v. Sauve, 544 P. 2d 1091, 112 Ariz. 576 (1976). In State v. Sauve supra, the defendant was asked by the police officers at the police station if he wanted to talk about an alleged crime. The defendant responded "no". Thereafter, the detective pointed to a box which contained items taken in the burglary and told the defendant that they had a good case against him and that they would probably find his fingerprints on the bottles. The defendant responded to this accusation by making statements of an inculpatory nature. The court ruled that the defendant's right to cut off questioning in assertion of his rights was not scrupulously honored and the response made by the defendant to statements made by the detective were not "voluntary".

The privilege against self-incrimination contained in the Fifth Amendment applies only to testimonial or communicative statements made or attempted to be extracted from the accused in custodial interrogation circumstances. This constitutional provision does not apply to physical evidence; chemical tests; handwriting samples; voice exemplars; footprints; fingerprints; line-ups; and other similar evidence. People v. Allen, 115 Cal. Rptr. 839, 41 C. A. 3d 196 (1974); State v. Lloyd, 538 P.2d 1278 (Or. App. 1975); Clinard v. State, 548 S. W. 2d 716 (Tex. Crim. App. 1977).

The main criteria used by courts to determine the applicability of the Miranda doctrine and whether inculpatory statements will be excluded or suppressed because of a violation of the Miranda rule are whether interrogation has taken place in a

custodial situation without the Miranda warning having been given. U. S. v. Hodge, 539 F. 2d 898, cert. denied, 97 S.C. 1100 (Cir. Court Mich. 1976); Pilcher v. Estelle, 528 F. 2d (Cir. Court Tex. 1976), cert. denied 427 U. S. 953. Courts have noted that the basic premise behind the Miranda decision is that custodial interrogation is inherently coercive, requiring that the accused be informed of the full range of constitutional rights and privileges that may be afforded to him. U. S. v. Crocker, 510 F. 2d 1129 (Cir. Court Okla. 1975). The ruling of the Miranda decision and the necessity to inform a person of such rights is triggered only by custodial interrogation, that is, when questioning initiated by law enforcement officers after a person has been taken into custody or otherwise deprived of his freedom in any significant way. U. S. x DeRosa v. Superior Court of New Jersey, 379 F. Sup. 957 (D. N. J. 1974); Mills v. State, 363 A. 2d 491, 278 Md. 262 (1976); Commonwealth v. Jennings, 338 A. 2d 598, 238 Pa. Super. 76 (1975); People v. Walker, 105 Cal. Rptr. 672, 29 Ca. 3d 448 (1972); State v. Austin, 368 N. E. 2d 59, 52 Ohio App. 2d 59 (1976); State v. Small, 514 P. 2d 283, 20 Ariz. App. 530 (1973).

Courts have ruled that the question of custody rather than focus of an investigation is the point in time when the privilege against self-incrimination attaches. Once custody in any form has been established, no interrogation whatsoever, however routine or casual, is permitted unless a valid waiver of the defendant's stated rights is demonstrated. State v. Mumbaugh, 491 P. 2d 443, 107 Ariz. 589 (1971). It should be

noted that police interrogation can qualify as "custodial" interrogation within the meaning of the Miranda concept without a formal arrest and even where the interrogation takes place in areas other than a police station. In such a situation, the circumstances surrounding the interrogation and the atmosphere in which it takes place will be closely scrutinized by the court to determine whether the person interrogated was in a custodial interrogation situation. State v. Lewis, 373 A. 2d 603 (Me. 1977).

One misconception sometimes held by law enforcement officers is that a person who has become the focus of a criminal investigation must be given his Miranda rights before questioning may be conducted. Several federal and state decisions have noted that a person is not entitled to various Miranda warnings merely because an investigation has focused on him as a suspect. The court in U. S. v. Bastone, 526 F. 2d 971, (Cir. Court Illinois 1975), cert. denied, 425 U. S. 973, noted that the test is a combination of "focus of investigation" plus "custodial interrogation" which means whether questioning has been initiated by law enforcement officers after a person has been taken into custody or otherwise deprived of his freedom of action in any significant way. Therefore, under this decision and others, the test is whether the person in question has been taken into custody or otherwise placed in a situation having a coercive or compelling atmosphere such that his free will and ability to resist the efforts of interrogators have been overcome. The mere fact, however, that a suspect has become the focus of a criminal investigation, standing alone, does not place the sus-

pect in "custody" for purposes of the Miranda Rule. U. S. v. Carollo, 507 F. 2d 50, rehearing denied, 510 F. 2d 1407 (Cir. Court La. 1975), cert. denied, 423 U. S. 874; U. S. v. Beckwith, 510 F. 2d 741 (U. S. Appeals Court D. C. 1975), affirmed, 425 U. S. 341; In re: James L. M., 139 Cal. Rptr. 902 (Cal. App. 1977).

Another question concerns the scope and application of the Miranda decision with respect to on-the-scene investigative questioning. In general, on-the-scene questioning of citizens by police officers is a fact-finding function not requiring advisement of Miranda rights. U. S. v. Quinones-Gonzalez, 452 F. 2d 964 (Cir. N. W. 1971). In State v. Bonhanan, 551 P. 2d 828 (Kan. 1976), and other decisions cited with respect to this question, courts have uniformly held that general on-the-scene questioning as to facts surrounding a crime or other general questioning of citizens in the fact-finding process does not constitute "custodial interrogation" requiring Miranda warnings.

It should be noted that the guarantee against compulsory self-incrimination applies in juvenile proceedings as well as adult criminal proceedings. U. S. v. Ramsey, 367 F. Supp. 1307 (D. Mo. 1973). Generally juvenile proceedings are regarded as criminal for purpose of the privilege of self-incrimination under the Fifth Amendment. State v. Rush, 186 S. E. 2d 595, 13 N. C. App. 539 (1972). However, the privilege against self-incrimination is inapplicable in a juvenile court waiver hearing setting where a confession by the juvenile may not be viewed as inculpatory and where it may not be used in a later criminal or delinquency adjudication.

One question that has been raised in the course of this study and review of procedures in the various study jurisdictions covered is whether the requirements of the Miranda Rule apply to questioning by fire suppression personnel, firefighters or those without arrest powers. Although no reported decisions have been found regarding this specific question, the better practice would dictate that Miranda warnings be given by fire personnel and other governmental personnel not having specific peace officer authority. Courts have noted that the Fifth Amendment is to provide a privilege against self-incrimination and that this privilege was developed to protect individuals in what is viewed as an unequal contest with the state. U. S. v. Soloman, 509 F. 2d 863 (Cir. Court N. Y. 1975). It seems likely that in view of the Michigan v. Tyler decision discussed above that the United States Supreme Court will consider the Fifth Amendment Clause against self-incrimination in pari materia with the Fourth Amendment search and seizure provisions. Under such an interpretation, the Supreme Court would likely hold that if questioning takes place in a custodial atmosphere under circumstances where the accused or suspect reasonably believes from a subjective point of view that his questioners have arrest, coercive or other authority over the suspect, such questioning would be invalid, and inculpatory statements derived therefrom suppressed in the absence of Miranda warnings having been given. Therefore, the better practice to be followed by fire personnel, arson investigators and fire marshals would be to follow a policy of providing Miranda rights for custodial interrogations. Such

investigators, as with their police counterparts, would not be required to give the Miranda ruling in the fire scene questioning of witnesses and other observers, neither would they be required to give a Miranda warning to persons who had become the focus of an investigation who were not interrogated in a custodial situation. Such personnel, however, should provide a Miranda warning to persons being interrogated where such interrogation takes place at a fire station, for example, or in other situations where from the totality of the circumstances it is apparent that the suspect's free will and resistance to questioning may in any manner be impaired. State v. Hale, 337 F. Supp. 1360 (D. S. D. 1971), affirmed in part, reversed in part on other grounds, 465 F. 2d 65, cert. denied, 409 U. S. 1130.

5.1.4 Proceedings Before Arraignment.

One arrested without a warrant or on a warrant issued by a magistrate on the filing of a complaint or affidavit must be brought with reasonable promptness before a magistrate to be advised of his rights, including his right to a preliminary examination and his right to have bail set if the offense is bailable. 21 Am. Jur. 2d, Criminal Law, Sec. 440. If the person is arrested under a warrant issued pursuant to an indictment, he must be taken before the court in which the indictment was filed or before another official as directed in the warrant. And this must be done as soon as reasonably possible after the arrest. Id.

The purpose of requiring that a person under arrest be taken to a committing magistrate without unnecessary delay is to safeguard individual rights without hampering effective and intelligent law enforcement. Upsah v. United States, 335 U.S. 410; Mallory v. United States, 354 U. S. 449. If a defendant's arrest is based on a warrant other than one issued pursuant to a grand jury indictment, there must be a formal charge made by complaint or affidavit which sets forth the nature and requisites of the charge brought. If the defendant is arrested without a warrant, a complaint must be filed before further proceedings may be taken. In re: Williams, 183 Cal. 11, 190 p. 163; State v. Steele, 95 Ohio App. 107, 52 Ohio Ops. 488, 117 N. E. 2d 617.

A preliminary examination as such did not exist under the common law. In some jurisdictions, it is provided for by

constitution, statute or, in the absence of either, by procedural rules of criminal law. If a grand jury finds an indictment, there is no need to conduct a preliminary examination. United States v. Gray, 87 F. Supp. 436 (D.C.); Webb v. Commonwealth, 204 Va. 24, 129 S. E. 2d 22. A preliminary examination before a magistrate is not a criminal prosecution or judicial trial of the accused. It is a mere judicial inquiry to determine whether there is probable cause for the accusation, the nature of which is thereby made known to the accused. The primary purpose of a preliminary examination is to ascertain whether there is reasonable ground to believe that a crime has been committed and whether there is just cause to believe the defendant committed said crime. Further purposes are said, by some authorities, to be to perpetuate testimony; to determine the amount of bail to be given by the prisoner in case he is held for trial; to weed out groundless or unsupported charges of grave offense; and to relieve the accused of the degradation and the expense of a criminal trial and the deprivation of his liberty if there is no probable cause for believing he is guilty of the crime. 21 Am. Jur. 2d, Criminal Law, Sec. 443.

Generally, under state jurisdictions, a preliminary examination in which the accused is held to answer or bound over is followed by the filing of an information by the prosecuting attorney, the preliminary examination taking the place of a grand jury inquiry, which precedes the finding of indictment. The only purpose of a preliminary examination in federal procedure is to determine whether there is sufficient evidence

against an accused to warrant his being held for action by a grand jury. In federal procedure, the function and purpose of proceeding by information is to expedite matters for the benefit of offenders who desire it, so the question of probable cause is presented directly to the court with the question of guilt, and preliminary proceedings before a magistrate to determine probable cause are therefore not necessary. In order to expedite the proceedings, a defendant must waive indictment, in which case he is not entitled to a preliminary examination before United States magistrate. If a defendant does desire to appear before a magistrate for a preliminary examination of probable cause, he should not waive his right to be proceeded against by indictment.

The preliminary examination to determine whether one accused of a crime should be held for trial is a judicial proceeding to be conducted in accordance with the procedures established by law. 21 Am. Jur. 2d, Criminal Law, Sec. 449. If a magistrate disregards substantial rights guaranteed to the defendant, the resulting commitment may be set aside unless the accused has waived objections by failing to make them at the proper time. At the preliminary hearing, the magistrate, before permitting the accused to speak, should advise the accused that he is entitled to counsel and should warn him that he need not speak and that if he does so, it is at his peril. Usually the state will not produce all of its witnesses and its only obligation is to produce sufficient proof to give probable cause for believing the accused guilty of the crime charged. The rule, followed at the main trial on the merits, that an accused is entitled

to the benefit of any doubt, does not apply to preliminary examinations. The test is not whether guilt is established beyond a reasonable doubt, but whether the evidence worthy of consideration in any aspect shows that the accused probably committed the crime with which he is charged. Circumstantial evidence alone, therefore, may be sufficient to hold one over for trial.

5.1.5 Arraignment.

The purpose and necessity of an arraignment are to fix the identity of the accused, to inform him of the charge against him and to give him an opportunity to plead. An arraignment is commonly regarded as essential to a valid conviction of felony, unless waived by the accused. In fact, it is frequently held that except where modified by statute, a conviction of felony must be reversed if the record does not show an arraignment of the accused. The formalities once followed on the arraignment of a prisoner are no longer strictly required. Nothing further need be shown in the record than that the accused was called before the court, read or had explained to him the accusatory pleading presented against him, whether indictment or information, and a demand from the court that he plead with respect to the charging instrument.

If the charging instrument has been substantially amended or modified so as to materially effect the charges brought against him, the accused should not be put on trial without having been arraigned again. However, the mere correction of a clerical or other immaterial error in the accusation does not require a second arraignment and plea.

Ordinarily an accused must be arraigned before the jury is impaneled and sworn or at least before the introduction of evidence. In most jurisdictions, the time and manner of arraignment are provided for by express rules of criminal procedure.

Some jurisdictions hold that where the jury is impaneled before the defendant is arraigned it is the duty of the trial court to discharge the jury and begin the trial anew by first arraigning the person and then selecting and swearing of the jury. Although an arraignment is generally regarded as an indispensable formality to the commencement of a trial for a felony, that right may be waived by the accused where he is provided with the nature of the charge against him and a full opportunity to defend himself.

5.1.6 Pleas.

A plea (or the equivalent of one) by the accused is generally a requirement for a proper criminal trial. Due process of law requires that an accused shall plead or be ordered to plead before his trial can rightfully proceed. It has been held that a plea is not a mere formality and that it must be made to create an issue for trial.

If an accused is arraigned on a charge and fails or refuses to plead, the court generally must enter a plea of not guilty and proceed to trial on that basis.

An accused may make a plea to the jurisdiction if permissible. A plea to the jurisdiction is based on the ground that a crime charged was not committed in the county in which the prosecution was instituted.

An accused may plead specially in bar any matter in confession and avoidance constituting a defense not admissible under the plea of not guilty. A special plea in bar is appropriate where the accused claims former acquittal, former conviction or pardon. A plea in bar essentially sets forth matters which per se destroy the right of action and bars prosecution absolutely such as the bar of statute of limitations or a provision for immunity. A plea of not guilty is a denial of and controversion of the existence of every fact essential to constitute the crime charged or to establish the accused's guilt. 21 Am. Jur. 2d, Criminal Law, Secs. 463-467. Under a

plea of not guilty, the accused may avail himself of any defense that is not required to be especially pleaded or that is not raised by appropriate motion such as the defense of entrapment or the statute of limitations. An accused may also plead the defense of former jeopardy or a former acquittal or conviction.

Generally an accused has the right to plead guilty and when not prohibited by statute may do so even in a capital case. Under some statutes, however, the accused cannot plead guilty in a capital case. A plea of guilty must be entirely involuntary. Before accepting a plea of guilty, it is the duty of the trial court to satisfy itself of the voluntary character of the plea, especially where the accused is without counsel or is obviously lacking in intelligence or in knowledge of our spoken language. 21 Am. Jur. 2d, Criminal Law, Secs. 485-486. An accused must also be advised by the court of the consequences of a plea of not guilty.

In recent years, there has been a rebirth in the frequency and use of the plea of nolo contendere in criminal proceedings. This plea raises no issue of law or fact under the accusation and this plea is only allowable generally on leave and acceptance by the court. It is not a plea in the strict sense but rather an unwillingness to plea or present a defense at all. A plea of nolo contendere means in its literal translation, "I do not wish to contend". The plea has been variously described as a confession, an implied confession, a quasi-confession of guilt, a plea of guilty, or a compromise between the govern-

ment and the accused. Fox v. Scheidt, 241 N. C. 31, 84 S. E. 2nd 259; State v. Burnett, 174 N. C. 796, 93 S. E. 473; Buck v. Commonwealth, 107 Pa. 486; Commonwealth v. Holsteine, 132 Pa. 357, 19 A. 273.

5.1.7 Nolle Prosequi, Dismissal and Discontinuance.

A nolle prosequi is a formal entry of record by the prosecuting attorney by which he declares that he is unwilling to prosecute a case or that he will not prosecute the case any further. An unqualified dismissal by the prosecuting attorney of an indictment constitutes a termination of the prosecution precluding reinstatement of the case or motion at its next term. Such an action immediately frees the defendant. A nolle prosequi is not res judicata of the offense charged and the dismissed indictment where the defendant had not yet been arraigned on the charge. A nolle prosequi may be entered after a jury has been impaneled. But, unless the defendant has consented to such action, a plea of former jeopardy may prevent a subsequent trial on the same offense.

5.1.8 Defense of Insanity

Under modern rules of criminal procedure, an insane person is not capable of committing crimes and cannot be legally punished for an act committed while insane, although the same act would constitute a crime if done by a sane person. People v. Wells, 33 Cal. 2d 330; State v. Jones, 278 N. C. 259; 21 Am. Jur. 2d, Criminal Law, Sec. 46. The underlying theory behind an insanity defense has been held to be that a crime requires the joint operation of act and intent. Accordingly, it has been held that an insane person cannot legally be guilty of any criminal intent because he cannot have any such intent. State v. Cooper, 170 N. C. 719; 21 Am. Jur. 2d, Criminal Law, Sec. 48. It is important to distinguish between insanity, diminished criminal responsibility, mental aberration, and other mental impairments in preparing a defense to an arson prosecution based on insanity or in preparing to meet and overcome such a defense raised by the accused.

The law does not require as a condition of criminal responsibility that one possess mental faculties in full vigor or unimpaired by disease or infirmity. Leache v. State, 22 Tex. App. 279; 21 Am. Jur. 2d, Criminal Law, Sec. 49. When insanity is raised as a defense to a criminal charge, the inquiry on the issue must be directed to the defendant's capacity at the time the act was committed. If the defendant was insane, by the standards prevailing in the particular

jurisdiction, at the moment of the criminal act, this will be a defense, however sane he may have been before or after such time. 21 Am. Jur. 2d, Criminal Law, Sec. 52.

Temporary insanity which arises from present voluntary intoxication is generally no defense to a criminal charge, and this is true even though the defendant's temporary state of mind may meet the requirements of legal insanity contained in the test of criminal responsibility in the particular jurisdiction in question. Evers v. State, 31 Tex. Crim. 318; 21 Am. Jur. 2d, Criminal Law, Sec. 54. Similarly, drug abuse or addiction has been generally held to be insufficient to render an accused incapable of committing a crime.

There are several different standards, or criteria, for measuring an individual's capacity for criminal responsibility. One of the earliest tests to gain wide-spread acceptance and recognition is the M'Naghten's Rule. Under this test, the proper standard for determining criminal responsibility is whether the accused was laboring under such a defective reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, he did not know that what he was doing was wrong. This test is followed in several jurisdictions. State v. Schantz, 98 Ariz. 200, 403 P. 2d 521; State v. Connley, 295 N. C. 327, 245 S. E. 2d 663; Commonwealth v. Woodhouse, 401 Pa. 242, 164 Atl. 2d 98; 21 Am. Jur. 2d, Criminal Law, Section 57. In several jurisdictions where the M'Naghten Rule has been judicially recognized and accepted, there are also various alternative

tests such as "the irresistible impulse test" or related formulas permitting an accused to be found not guilty on the ground that although he knew the act was wrong, he was unable to refrain from committing it.

The M'Naghten Rule or Test has long been under attack on the grounds that it adopts and enforces, as a matter of law, outmoded and erroneous psychological theories and that it tends to limit or distort expert psychiatric testimony. 21 Am. Jur. 2d, Criminal Law, Sec. 59.

A second rule or test for measuring criminal responsibility was formulated in the Durham Case. Durham v. United States, 214 F. 2d 862. Under the Durham Rule, an accused is not responsible for an unlawful act if the act was the product of mental disease or mental defect. The court in adopting the "Durham" Rule stated that this rule was adopted in the belief that the M'Naghten right and wrong test is inadequate in that:

1. It does not take sufficient account of psychic realities and scientific knowledge.
2. It is based upon one symptom and so cannot validly be applied in all circumstances.
3. The irresistible impulse test is also inadequate in that it gives no recognition to mental illness characterized by brooding and reflection.

The phrase "mental disease or defect" in the Durham test includes any abnormal condition of the mind, regardless of

its medical label, which substantially effects mental or emotional processes and substantially impairs behavior controls.

The Model Penal Code has also formulated a standard for measuring criminal responsibility. Under the Model Penal Code, a person is not responsible for criminal conduct, if, at the time of such conduct, as a result of mental disease or defect the accused lack substantial capacity either to appreciate the criminality of his conduct or to conform his conduct to the requirements of law. The Model Penal Code is based on the view that the rule should take account of impairment of volitional capacity no less than impairment of cognition, but that the irresistible impulse formulation is inapt because the term "impulse" suggests limitation to sudden, momentary or spontaneous inclination to commit unlawful acts. 21 Am. Jur. 2d, Criminal Law, Sec. 63.

The defense of insanity at the time of commission of an alleged unlawful act is ordinarily raised by a special plea of not guilty by reason of insanity. People v. Pacheco, 258 Cal. App. 2d 800. The question of the sanity of an accused is best determined by medical experts; and in many jurisdictions, statutes have been enacted providing for independent medical examination of an accused prior to trial. 21 Am. Jur. 2d, Criminal Law, Sec. 67. Ordinarily, since sanity at the time of the act goes to guilt or innocence of the accused, it is an issue which must be decided by the jury. It has been held that where the alleged offense is one triable by jury,

the accused has a constitutional right to jury trial of his insanity defense. 21 Am. Jur. 2d, Criminal Law, Sec. 72.

Once evidence of insanity has been introduced, the burden is on the prosecution to prove beyond a reasonable doubt that the defendant was legally sane at the time of the offense. Therefore, although the prosecution may rely on an initial presumption of sanity, unless and until evidence to rebut such presumption is introduced, an acquittal must result if there is reasonable doubt as to the accused's sanity. 21 Am. Jur. 2d, Criminal Law, Sec. 76; State v. Moore, 111 Ariz. 496, 533 Pa. 2d, 663. The accused has the burden of proof in the first instance of presenting evidence to establish insanity.

5.1.9 Defense of Entrapment

A defense that may be raised with greater frequency in the future, as undercover agents and informants penetrate arson for profit rings, is the defense of entrapment. Entrapment has been defined as the inducement of one to commit a crime not contemplated by him for the mere purpose of instituting a criminal prosecution against him. 21 Am. Jur. 2d, Criminal Law, Sec. 202. In its most basic terms, entrapment has been defined as conception and planning of an offense by an officer and the procurement of its commission by one who would not have perpetrated it otherwise except for the persuasion of the officer involved. People v. Bernal, 174 Cal. App. 2d 777, 345 P. 2d 140; State v. Burnette, 242 N. C. 164, 87 S. E. 2d 191; Swift v. Commonwealth, 199 Va. 420, 100 S. E. 2d 9.

The defense of entrapment is not limited to actual participation and involvement by a police officer and it has been held that where a law enforcement officer uses an individual to help him arrange the commission of a crime by another person, the officer cannot disclaim the inducements such individual made in the course of his efforts on his behalf. 21 Am. Jur. 2d, Criminal Law, Sec. 202.

In essence, the defense of entrapment prohibits law enforcement officials from instigating criminal acts by otherwise innocent persons in order to punish them. The defense of entrapment consists of two elements:

1. Acts of persuasion, trickery, or fraud carried out by law enforcement officers or their agents to induce a defendant to commit a crime, and
2. The origin of the criminal design in the minds of the government officials rather than that of the innocent defendant such that the crime is the product of the creative activity of the law enforcement officers.

State v. Walker, 295 N. C. 510, 246 S. E. 2d 748 (21 Am. Jur. 2d, Criminal Law, Sec. 202).

There is a clear distinction in the law between inducing a person to do an unlawful act and setting a trap to catch him in the execution of a criminal plan of his own conception. As such, there is a distinction between the terms "detection" and "entrapment". 21 Am. Jur. 2d, Criminal Law, Sec. 202. Legitimate detection of crime occurs when officers test a suspected person by offering him an opportunity to violate the law in such a manner as will enable detection and apprehension. As the United States Supreme Court noted in Sherman v. United States, 356 U. S. 369, in deciding the issue of entrapment, "a line must be drawn between the trap for the unwary innocent and the trap for the unwary criminal."

Entrapment is an affirmative or positive defense that must be raised by the defendant. Entrapment as a defense was not known to the common law and is in the nature of a confession

of crime and avoidance on other grounds. 21 Am. Jur. 2d,
Criminal Law, Sec. 203.

5.1.10 Federal Laws Pertaining to Arson

There are a number of federal statutes that relate to the prosecution of arson-for-profit cases. A variety of federal statutes provide a jurisdictional basis for arson prosecutions in federal court. In addition to the federal explosive laws, conspiracy laws, and racketeering offenses, a number of arson schemes have been successfully prosecuted under federal fraud statutes and related laws. Such federal fraud statutes include the crimes of mail fraud, wire fraud, and bank fraud. Fraud prosecutions can also be combined with extortion violations, travel act offenses, and explosives crimes offenses. The statute on racketeer influenced and corrupt organizations is also becoming a highly-relevant statute in arson-for-profit investigations.

The following is a review of several federal statutes that have application to arson-for-profit and arson-in-support-of-other-crimes. Among other sources, the reader is directed to the Report to Congress on Arson and the Aetna-CDAAs Study on Arson Prosecution.

Mail Fraud - 18 U. S. C. Sec. 1341, Frauds and Swindlers.

This federal law provides that whoever, having devised or intending to devise any scheme or artifice in defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, for the purpose of executing such scheme or artifice or attempting so to do, places in any post office or authorized depository for mail matter, any matter or thing whatever to be sent or delivered by the Postal Service, or takes or receives therefrom, any such matter or thing,

or knowingly causes to be delivered by mail according to the direction thereon, or at the place at which it is directed to be delivered by the person to whom it is addressed, any such matter or thing, shall be fined not more than One Thousand Dollars (\$1,000.00) or imprisoned not more than five (5) years, or both.

Wire Fraud - 18 U. S. C. Sec. 1343, Fraud by Wire, Radio, or Television.

This provision of federal law provides that whoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretense, representations, or promises, transmits or causes to be transmitted by means of wire, radio, or television communication in interstate or foreign commerce, any writings, signs, signals, pictures, or sounds for the purpose of executing such scheme or artifice, shall be fined not more than One Thousand Dollars (\$1,000.00) or imprisoned not more than five (5) years, or both.

Bank Fraud - 18 U. S. C. Sec. 1014, Loan and Credit Applications Generally; Renewals and Discounts; Crop Insurance.

Whoever knowingly makes any false statement or report, or willfully over-values any land, property or security, for the purpose of influencing in any way the action of the Reconstruction Finance Corporation, Farm Credit Administration, Federal Crop Insurance Corporation, Farmers' Home Corporation, the Secretary of Agriculture acting through the Farmers' Home Administration, and Federal Intermediate Credit Bank, or any division, officer, or employee thereof, or of any corporation organized under Section 1131-1134 M of Title XII, or of any regional agricultural credit corporation established pursuant to law, or of the National Agricultural Credit Corporation, a Federal Home Loan Bank, the Federal Home Loan Bank Board, the Home Owners' Loan Corporation, a Federal Savings and Loan Association, a Federal land bank, a joint-stock land bank, a Federal land bank association, a Federal Reserve bank, a small business investment company, a Federal Credit Union, an insured state-chartered credit union, any institution the accounts of which are insured by the Federal Savings and Loan Insurance Corporation, any bank the deposits of which are insured by the Federal Deposit Insurance Corporation, any member of the Federal Home Loan Bank System, the Federal Deposit Insurance Corporation, the Federal Savings and Loan Insurance Corporation, or the administrator of the National Credit Union

Administration, upon any application, advance, discount, purchase, purchase agreement, repurchase agreement, commitment, or loan, or any change or extension of any of the same, by renewal, deferment action or otherwise, or the acceptance, release or substitution of security therefore, shall be fined not more than Five Thousand Dollars (\$5,000.00) or imprisoned not more than two (2) years, or both.

Extortion - 18 U. S. C. Sec. 1951, Interference With
Commerce Threats or Violence.

- (a) Whoever in any way or degree obstructs, delays, or affects commerce or the movement of any article or commodity in commerce, by robbery or extortion or attempts or conspires so to do, or commits or threatens physical violence to any person or property in furtherance of a plan or purpose to do anything in violation of this section shall be fined not more than Ten Thousand Dollars (\$10,000.00) or imprisoned not more than Twenty (20) years, or both.
- (b) As used in this section:
- (2) The term "extortion" means the obtaining of property from another, with his consent, induced by wrongful use of actual or threatened force, violence, or fear, or under color of official right.

Travel Act - 18 U. S. C. Sec. 1952, Interstate and Foreign Travel or Transportation in Aid of Racketeering Enterprises.

- (a) Whoever travels in interstate or foreign commerce or uses any facility in interstate or foreign commerce, including mail, with intent to:
- (1) Distribute the proceeds of any unlawful activity; or
 - (2) Commit any crime of violence to further any unlawful activity; or
 - (3) Otherwise promote, manage, establish, carry on, or facilitate the promotion, management, establishment, or carrying on, of any unlawful activity, and thereafter performs or attempts to perform any of the acts specified in subparagraphs (1), (2), and (3), shall be fined not more than Ten Thousand Dollars (\$10,000.00) or imprisoned for not more than five (5) years, or both.

(b) As used in this section, "unlawful activity" means:

- (1) Any business enterprise involving gambling; liquor on which the federal excise tax has not been paid; narcotics or controlled substances (as defined in Sec. 102(6) of the

Controlled Substances Act); or prostitution offenses in violation of the laws of the state in which committed or of the United States; or

- (2) Extortion, bribery, or arson in violation of the laws of the states in which committed or of the United States.

The crucial elements which the government must prove under a RICO prosecution in order to sustain conviction are the defendant's association with a criminal enterprise and the existence of a pattern of racketeering activity. United States v. Morris, 532 F. 2d 436 (5th Cir. Tex. 1976). In prosecuting a case under the RICO statute, the pattern of racketeering activity referred to by the statute becomes of considerable importance. As used in the RICO statute, the word "pattern" should be construed as requiring more than accidental or unrelated instances of proscribed behavior, it should be taken as requiring that racketeering acts must have been connected with each other by some common scheme, plan or motive so as to constitute pattern and not simply a series of unconnected acts. United States v. Stofsky, 409 F. Supp. 609 (D. N. Y. 1973). For purposes of the RICO statute, a "pattern" can apparently be established by two acts occurring on the same day in the same place and forming a part of the same criminal episode. U. S. v. Moeller, 402 F. Supp. (D. Conn. 1975). As an example, in United States v. Morris, 532 F. 2d 436 (5th Cir. Tex. 1976), the evidence showed that the defendant engaged

in several card games over a nineteen-(19) month period and followed an easily recognizable pattern, including junkets to Nevada, private card games in his hotel suite, the presence of shills, and the use of a "cold deck" and other slight-of-hand cheating techniques. The Court held that this evidence was sufficient to show "a pattern of racketeering activity".

Explosives - 18 U. S. C. Sec. 444(d) Interstate Transportation of an Explosive Device.

Whoever transports or receives, or attempts to transport or receive, in interstate or foreign commerce any explosive with the knowledge or intent that it will be used to kill, injure, or intimidate any individual or unlawfully to damage or destroy any building, vehicle, or other real or personal property, shall be imprisoned for not more than Ten (10) years, or fined not more than Ten Thousand Dollars (\$10,000.00) or both; and if personal injury results shall be imprisoned for not more than Twenty (20) years or fined not more than Twenty Thousand Dollars (\$20,000.00), or both; and if death results, shall be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment as provided in Sec. 34 of this title.

Explosive - 18 U. S. C. Sec. 844(i), Destruction of Property Used in or Affecting Interstate Commerce.

Whoever maliciously damages or destroys, or attempts to damage or destroy, by means of an explosive, any building, vehicle, or other real or personal property used in interstate or foreign commerce or in any activity affecting interstate or foreign commerce shall be imprisoned for not more than Ten (10) years or fined not more than Ten Thousand Dollars (\$10,000.00), or both; and if personal injury results shall be imprisoned for not more than Twenty (20) years or fined not more than Twenty Thousand Dollars (\$20,000.00), or both; and if death results, shall also be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment as provided in Sec. 34 of this title.

APPENDIX 5.2
 1979-1980 UCR ARSON REPORTS
 FOR STUDY SITES

1979 UCR Arson Clearance Summary

City 17

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	6.5%	20.0%	43.0%
B. Other Residential	3.2%	4.3%	0.0%
C. Storage	1.6%	1.4%	100.0%
D. Industrial/ Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	8.9%	1.6%	0.0%
F. Community/Public	8.8%	3.8%	75.0%
G. All Other Structure	0.0%	0.0%	0.0%
Total Structure	6.0%	47.8%	30.0%
H. Motor Vehicles	4.9%	21.7%	33.3%
I. Other Mobile Property	4.8%	1.4%	100.0%
Total Mobile	4.9%	23.0%	37.5%
J. Total Other	13.8%	28.9%	95.0%
Grand Total	6.8%	100.0%	51.0%

1979 UCR Arson Structural Loss Summary

City 17

	% Of All Structural Arsons	% Of Vacant Structures	% Of Total \$ Loss
A. Single Occupancy Residential	38.9%	32.0%	20.0%
B. Other Residential	17.3%	17.0%	9.0%
C. Storage	10.9%	13.0%	12.7%
D. Industrial/Manufacturing	0.5%	0.0%	0.2%
E. Other Commercial	25.0%	12.0%	34.0%
F. Community/Public	8.0%	2.2%	22.0%
G. All Other Structure	1.4%	0.0%	4.0%
Total Structure	100.0%	19.9%	100.0%

1979 UCR Arson \$ Loss Summary By Property Type

City 17

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	21.0%	18.1%	\$3,715
B. Other Residential	9.3%	8.4%	\$3,867
C. Storage	6.0%	11.3%	\$8,246
D. Industrial/Manufacturing	0.3%	0.3%	\$3,667
E. Other Commercial	12.0%	30.7%	\$10,864
F. Community/Public	4.4%	19.6%	\$19,156
G. All Other Structure	0.8%	0.4%	\$2,190
Total Structure	53.7%	88.6%	\$70,914
H. Motor Vehicles	32.0%	7.4%	\$1,062
I. Other Mobile Property	0.0%	2.7%	\$5,857
Total Mobile	32.0%	10.0%	\$1,370
J. Total Other	14.2%	1.2%	\$361
Grand Total	100.0%	100.0%	\$4,305

1980 UCR Arson \$ Loss Summary By Property Type

City 17

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	19.7	13.4	5,260
B. Other Residential	8.1	1.9	1,853
C. Storage	5.1	4.0	6,130
D. Indust./Manuf.	0.04	8.0	166,667
E. Other Commercial	16.0	61.7	30,053
F. Community/Public	6.0	3.0	3,944
G. All Other Structure	0.1	12.0	9,696
Total Structure	56.2	93.2	12,860
H. Motor Vehicles	32.5	5.3	1,272
I. Other Mobile Property	0.12	0.6	3,621
Total Mobile	33.7	5.9	1,359
J. Total Other	10.1	0.8	634
Grand Total	100.0	100.0	7,752

1980 UCR Arson Structural Loss Summary

City 17

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	35.2	54.0	14.3
B. Other Residential	14.4	52.0	2.1
C. Storage	9.1	75.6	4.3
D. Indust./Manuf.	0.7	0.0	8.6
E. Other Commercial	28.3	40.1	66.2
F. Community/Public	10.6	29.2	3.3
G. All Other Structure	1.7	88.0	1.3
Total Structure	100.0	50.0	100.0

1980 UCR Arson Clearance Summary

City 17

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	17.0	30.3	37.0
B. Other Residential	17.0	12.4	64.0
C. Storage	14.6	6.7	17.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	7.0	10.0	44.0
F. Community/Public	6.0	3.0	33.0
G. All Other Structure	0.0	0.0	0.0
Total Structure	12.4	63.0	41.0
H. Motor Vehicles	7.3	21.3	32.0
I. Other Mobile Property	0.0	0.0	0.0
Total Mobile	6.3	19.1	35.0
J. Total Other	17.3	15.7	50.0
Grand Total	11.1	100.0	40.4

1979 UCR Arson \$ Loss Summary By Property Type

City 24

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	32.3%	9.0%	\$10,997
B. Other Residential	21.2%	68.7%	\$127,136
C. Storage	4.3%	4.6%	\$42,367
D. Industrial/ Manufacturing	0.35%	0.7%	\$77,777
E. Other Commercial	21.4%	8.1%	\$14,946
F. Community/Public	1.4%	6.8%	\$194,941
G. All Other Structure	1.0%	0.6%	\$240,187
Total Structure	81.9%	98.6%	\$46,485
H. Motor Vehicles	15.9%	1.0%	\$2,684
I. Other Mobile Property	0.52%	0.2%	\$15,354
Total Mobile	16.7%	1.3%	\$3,050
J. Total Other	1.4%	0.08%	\$2,354
Grand Total	100.0%	100.0%	\$38,711

CONTINUED

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1979 UCR Arson Structural Loss Summary

City 24

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	39.4%	36.8%	9.2%
B. Other Residential	25.9%	37.2%	69.6%
C. Storage	5.3%	5.0%	4.7%
D. Industrial/Manufacturing	0.43%	0.0%	0.7%
E. Other Commercial	26.1%	2.7%	8.2%
F. Community/Public	1.7%	10.0%	6.9%
G. All Other Structure	1.3%	0.0%	0.6%
Total Structure	100.0%	25.3%	100.0%

1979 UCR Arson Clearance Summary

City 24

	% Clearance Rate For Each Property Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	16.2%	35.5%	31.3%
B. Other Residential	18.8%	27.0%	23.0%
C. Storage	33.3%	9.8%	36.4%
D. Industrial/Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	8.6%	12.4%	0.0%
F. Community/Public	52.0%	4.8%	64.2
G. All Other Structure	6.3%	0.4%	100.0%
Total Structure	15.8%	91.3%	27.2%
H. Motor Vehicles	4.01%	4.3%	0.0%
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	3.8%	4.3%	0.0%
J. Total Other	46.7%	4.3%	10.2%
Grand Total	14.3%	100.0%	25.3%

1980 UCR Arson \$ Loss Summary By Property Type

City 24

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	25.0	36.3	15,908
B. Other Residential	12.6	13.4	12,107
C. Storage	4.8	5.2	12,451
D. Indust./Manuf.	0.25	1.5	71,616
E. Other Commercial	12.7	18.4	16,508
F. Community/Public	2.7	11.9	48,495
G. All Other Structure	0.6	4.4	86,379
Total Structure	59.7	91.1	17,359
H. Motor Vehicles	31.8	8.0	2,850
I. Other Mobile Property	0.6	0.8	15,003
Total Mobile	32.4	8.8	3,086
J. Total Other	7.9	0.1	82
Grand Total	9.7	100.0	11,365

1980 UCR Arson Structural Loss Summary

City 24

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	43.4	35.9	39.8
B. Other Residential	21.1	28.2	14.7
C. Storage	8.0	0.0	5.7
D. Indust./Manuf.	0.4	61.1	1.7
E. Other Commercial	21.2	0.0	20.2
F. Community/Public	4.7	1.6	13.0
G. All Other Structure	1.0	7.7	4.9
Total Structure	100.0	2.2	??

1980 UCR Arson Clearance Summary

City 24

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	14.6	38.7	12.9
B. Other Residential	15.0	19.4	20.7
C. Storage	15.0	7.4	27.5
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	0.10	14.3	10.6
F. Community/Public	10.5	3.0	83.1
G. All Other Structure	0.25	1.5	65.6
Total Structure	13.8	84.3	20.8
H. Motor Vehicles	4.4	14.3	17.4
I. Other Mobile Property	7.1	0.5	100.0
Total Mobile	4.4	14.8	20.0
J. Total Other	1.2	1.0	0.0
Grand Total	9.7	100.0	20.5

1979 UCR Arson \$ Loss Summary By Property Type

City 33

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	23.5%	32.9%	\$5,026
B. Other Residential	29.4%	29.3%	\$4,097
C. Storage	3.5%	6.2%	\$6,314
D. Industrial/Manufacturing	2.2%	8.0%	\$12,916
E. Other Commercial	4.4%	6.4%	\$5,219
F. Community/Public	10.0%	7.9%	\$2,829
G. All Other Structure	2.0%	0.67%	\$1,191
Total Structure	75.2%	91.4%	\$4,369
H. Motor Vehicles	18.9%	8.0%	\$1,530
I. Other Mobile Property	2.4%	0.48%	\$730
Total Mobile	21.3%	8.5%	\$1,440
J. Total Other	3.5%	0.04%	\$45
Grand Total	100.0%	100.0%	\$3,593

1979 UCR Arson Structural Loss Summary

City 33

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	31.3%	37.8%	36.0%
B. Other Residential	39.2%	15.7%	32.1%
C. Storage	4.7%	10.5%	6.8%
D. Industrial/Manufacturing	3.0%	41.7%	8.7%
E. Other Commercial	5.9%	4.2%	7.0%
F. Community/Public	13.3%	5.6%	8.6%
G. All Other Structure	27.0%	9.1%	0.73%
Total Structure	100.0%	21.4%	100.0%

1979 UCR Arson Clearance Summary

City 33

	% Clearance Rate For Each Property Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	7.0%	15.0%	55.6%
B. Other Residential	10.7%	28.3%	52.9%
C. Storage	5.3%	1.7%	0.0%
D. Industrial/Manufacturing	25.0%	5.0%	0.0%
E. Other Commercial	4.2%	1.7%	100.0%
F. Community/Public	18.5%	16.7%	50.0%
G. All Other Structure	0.0%	0.0%	0.0%
Total Structure	10.1%	68.3%	48.8%
H. Motor Vehicles	16.7%	28.3%	17.6%
I. Other Mobile Property	7.7%	1.7%	0.0%
Total Mobile	15.7%	30.0%	16.7%
J. Total Other	5.3%	1.7%	0.0%
Grand Total	11.1%	100.0%	38.3%

1980 UCR Arson \$ Loss Summary By Property Type

City 33

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	20	12.4	4,534
B. Other Residential	29.3	15.0	3,895
C. Storage	4.7	28.2	45,807
D. Indust./Manuf.	0.9	.02	175
E. Other Commercial	4.7	39.0	62,550
F. Community/Public	8.7	.5	444
G. All Other Structure	2.3	.08	292
Total Structure	71.6	94.8	10,091
H. Motor Vehicles	15.0	3.9	1,995
I. Other Mobile Property	1.6	1.2	5,785
Total Mobile	16.7	5.2	2,369
J. Total Other	11.7	.01	7
Grand Total	100.0	100.0	6,352

1980 UCR Arson Structural Loss Summary

City 33

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	29.2	48.3	13.1
B. Other Residential	41.0	14.4	15.8
C. Storage	6.6	5.0	29.8
D. Indust./Manuf.	1.3	0.0	.02
E. Other Commercial	6.6	15.0	40.6
F. Community/Public	12.1	2.7	53.0
G. All Other Structure	3.3	0.0	.09
Total Structure	100.0	21.6	100.0

1980 UCR Arson Clearance Summary

City 33

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	12.4	23.4	36.4
B. Other Residential	11.2	29.8	21.4
C. Storage	20.0	8.5	50.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	15.0	6.4	33.3
F. Community/Public	18.9	14.9	71.4
G. All Other Structure	0.0	0.0	0.0
Total Structure	12.8	83.0	38.5
H. Motor Vehicles	6.3	8.5	25.0
I. Other Mobile Property	28.6	4.3	100.0
Total Mobile	8.5	12.8	50.0
J. Total Other	4.0	4.3	100.0
Grand Total	9.2	100.0	42.6

1979 UCR Arson \$ Loss Summary By Property Type

City 44

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	17.5%	39.4%	\$5,821
B. Other Residential	25.0%	27.2%	\$2,809
C. Storage	7.5%	1.2%	\$400
D. Industrial/Manufacturing	5.0%	7.3%	\$3,750
E. Other Commercial	2.5%	0.48%	\$500
F. Community/Public	5.0%	0.15%	\$75
G. All Other Structure	2.5%	7.7%	\$8,000
Total Structure	65.0%	83.4%	\$3,315
H. Motor Vehicles	22.5%	9.0%	\$1,036
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	22.5%	9.0%	\$1,036
J. Total Other	12.5%	7.5%	\$1,560
Grand Total	100.0%	100.0%	\$2,583

1979 UCR Arson Structural Loss Summary

City 44

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	26.9%	0.0%	47.2
B. Other Residential	38.5%	20.0%	32.5%
C. Storage	11.5%	0.0%	1.4%
D. Industrial/Manufacturing	7.7%	0.0%	8.7%
E. Other Commercial	3.8%	0.00%	0.6%
F. Community/Public	7.7%	0.0%	0.2%
G. All Other Structure	3.8%	0.0%	9.3%
Total Structure	100.0%	7.7%	100.0%

1979 UCR Arson Clearance Summary

City 44

	% Clearance Rate For Each Property Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	57.1%	18.2%	0.0%
B. Other Residential	60.0%	27.3%	0.0%
C. Storage	66.7%	9.1%	0.0%
D. Industrial/Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	0.0%	0.0%	0.0%
F. Community/Public	50.0%	4.5%	50.0%
G. All Other Structure	100.0%	4.5%	0.0%
Total Structure	53.8%	63.6%	3.8%
H. Motor Vehicles	33.3%	13.6%	0.0%
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	33.3%	13.6%	0.0%
J. Total Other	100.0%	22.7%	60.0%
Grand Total	55.0%	100.0%	18.2%

1980 UCR Arson \$ Loss Summary By Property Type

City 44

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	23.2	5.6	1,321
B. Other Residential	37.2	11.5	1,700
C. Storage	16.3	4.1	1,371
D. Indust./Manuf.	23.0	59.3	140,000
E. Other Commercial	4.7	17.0	20,075
F. Community/Public	9.0	0.3	270
G. All Other Structure	0.0	0.0	0
Total Structure	90.7	98.0	5,922
H. Motor Vehicles	7.0	2.1	1,646
I. Other Mobile Property	0.0	0.0	0
Total Mobile	7.0	2.1	1,646
J. Total Other	2.3	0.0	4,940
Grand Total	100.0	100.0	5,486

1980 UCR Arson Structural Loss Summary

City 44

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	25.6	30.0	5.7
B. Other Residential	41.0	6.3	11.8
C. Storage	17.9	0.0	4.2
D. Indust./Manuf.	2.6	0.0	60.6
E. Other Commercial	5.1	0.0	17.4
F. Community/Public	7.7	0.0	0.4
G. All Other Structure	0.0	0.0	0.0
Total Structure	100.0	26.7	100.0

1980 UCR Arson Clearance Summary

City 44

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	40.0	25.0	0.0
B. Other Residential	68.8	68.8	45.5
C. Storage	0.0	0.0	0.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	0.0	0.0	0.0
F. Community/Public	0.0	0.0	0.0
G. All Other Structure	0.0	0.0	0.0
Total Structure	38.5	93.8	33.0
H. Motor Vehicles	33.3	6.3	0.0
I. Other Mobile Property	0.0	0.0	0.0
Total Mobile	33.3	6.3	0.0
J. Total Other	0.0	0.0	0.0
Grand Total	37.2	100.0	31.3

1980 UCR Arson \$ Loss Summary By Property Type

City 57

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	53.1	42.0	5,875
B. Other Residential	3.6	2.7	5,580
C. Storage	3.6	0.21	430
D. Indust./Manuf.	4.1	16.8	30,240
E. Other Commercial	10.7	28.9	19,837
F. Community/Public	9.2	5.1	4,120
G. All Other Structure	1.5	0.4	2,000
Total Structure	85.7	96.4	8,284
H. Motor Vehicles	12.2	3.2	1,932
I. Other Mobile Property	1.0	0.4	2,700
Total Mobile	13.3	3.6	1,991
J. Total Other	1.0	0.01	100
Grand Total	100.0	100.0	7,365

1980 UCR Arson Structural Loss Summary

City 57

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	62.0	18.3	44.0
B. Other Residential	4.2	14.3	2.8
C. Storage	4.2	0.0	0.2
D. Indust./Manuf.	4.8	0.0	17.4
E. Other Commercial	12.5	4.8	30.0
F. Community/Public	10.7	0.0	5.3
G. All Other Structure	1.8	0.0	0.4
Total Structure	100.0	12.5	100.0

1980 UCR Arson Clearance Summary

City 57

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	15.4	53.3	6.3
B. Other Residential	29.0	6.7	0.0
C. Storage	42.9	10.0	0.0
D. Indust./Manuf.	25.0	6.7	0.0
E. Other Commercial	9.5	6.7	0.0
F. Community/Public	22.2	13.3	0.0
G. All Other Structure	33.3	3.3	0.0
Total Structure	17.9	86.0	3.3
H. Motor Vehicles	16.7	80.0	0.0
I. Other Mobile Property	50.0	20.0	50.0
Total Mobile	19.2	14.3	20.0
J. Total Other	0.0	0.0	0.0
Grand Total	17.9	100.0	5.7

1979 UCR Arson \$ Loss Summary By Property Type

City 60

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	54.0%	9.0%	\$5757
B. Other Residential	2.0%	50.0%	\$876,800
C. Storage	3.0%	14.0%	\$35,486
D. Industrial/ Manufacturing	4.0%	0.3%	\$2,900
E. Other Commercial	6.0%	12.0%	\$68,333
F. Community/Public	4.0%	14.0%	\$83,335
G. All Other Structure	3.0%	0.0%	\$0
Total Structure	83.0%	99.0%	\$38,108
H. Motor Vehicles	17.0%	1.0%	\$2,011
I. Other Mobile Property	0.0%	0.0%	\$0
Total Mobile	17.0%	1.0%	\$2,011
J. Total Other	0.0%	1.0%	\$0
Grand Total	100.0%	100.0%	\$32,201

1979 UCR Arson Structural Loss Summary

City 60

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	64.0%	0.0%	10.0%
B. Other Residential	2.0%	0.0%	50.0%
C. Storage	16.0%	14.0%	14.0%
D. Industrial/ Manufacturing	4.0%	0.0%	.03%
E. Other Commercial	7.0%	0.0%	12.0%
F. Community/Public	4.0%	0.0%	14.0%
G. All Other Structure	2.0%	0.0%	0.0%
Total Structure	100.0%	12.0%	100.0%

1979 UCR Arson Clearance Summary

City 60

	% Clearance Rate For Each Prop-erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	28.0%	100.0%	63.0%
B. Other Residential	0.0%	0.0%	0.0%
C. Storage	0.0%	0.0%	0.0%
D. Industrial/Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	0.0%	0.0%	0.0%
F. Community/Public	0.0%	0.0%	0.0%
G. All Other Structure	0.0%	0.0%	0.0%
Total Structure	18.0%	100.0%	63.0%
H. Motor Vehicles	0.0%	0.0%	0.0%
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	0.0%	0.0%	0.0%
J. Total Other	0.0%	0.0%	0.0%
Grand Total	8.0%	100.0%	63.0%

5.2-32

1980 UCR Arson \$ Loss Summary By Property Type
City 60

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	46.6	12.6	6,555
B. Other Residential	8.6	73.0	205,551
C. Storage	2.6	8.0	75,416
D. Indust./Manuf.	0.9	3.5	100,000
E. Other Commercial	3.4	0.3	1,780
F. Community/Public	7.8	0.2	608
G. All Other Structure	2.6	0.7	6,750
Total Structure	72.4	98.2	32,959
H. Motor Vehicles	26.7	1.7	1,532
I. Other Mobile Property	0.9	0.1	4,000
Total Mobile	27.6	1.8	1,609
J. Total Other	0.0	0.0	0
Grand Total	100.0	100.0	24,311

1979 UCR Arson Clearance Summary

City 60

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	28.0%	100.0%	63.0%
B. Other Residential	0.0%	0.0%	0.0%
C. Storage	0.0%	0.0%	0.0%
D. Industrial/ Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	0.0%	0.0%	0.0%
F. Community/Public	0.0%	0.0%	0.0%
G. All Other Structure	0.0%	0.0%	0.0%
Total Structure	18.0%	100.0%	63.0%
H. Motor Vehicles	0.0%	0.0%	0.0%
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	0.0%	0.0%	0.0%
J. Total Other	0.0%	0.0%	0.0%
Grand Total	8.0%	100.0%	63.0%

1980 UCR Arson \$ Loss Summary By Property Type

City 60

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	46.6	12.6	6,555
B. Other Residential	8.6	73.0	205,551
C. Storage	2.6	8.0	75,416
D. Indust./Manuf.	0.9	3.5	100,000
E. Other Commercial	3.4	0.3	1,780
F. Community/Public	7.8	0.2	608
G. All Other Structure	2.6	0.7	6,750
Total Structure	72.4	98.2	32,959
H. Motor Vehicles	26.7	1.7	1,532
I. Other Mobile Property	0.9	0.1	4,000
Total Mobile	27.6	1.8	1,609
J. Total Other	0.0	0.0	0
Grand Total	100.0	100.0	24,311

1980 UCR Arson Structural Loss Summary

City 60

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	64.3	5.9	12.8
B. Other Residential	12.0	0.0	74.2
C. Storage	3.6	0.0	8.2
D. Indust./Manuf.	1.2	0.0	3.6
E. Other Commercial	4.8	0.0	0.3
F. Community/Public	10.7	0.0	0.2
G. All Other Structure	3.6	0.0	0.7
Total Structure	100.0	3.6	100.0

1980 UCR Arson Clearance Summary

City 60

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	57.4	77.5	64.5
B. Other Residential	0.0	0.0	0.0
C. Storage	0.0	0.0	0.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	25.0	2.5	0.0
F. Community/Public	0.0	0.0	0.0
G. All Other Structure	66.7	5.0	0.0
Total Structure	40.5	85.0	58.8
H. Motor Vehicles	19.4	15.0	66.6
I. Other Mobile Property	0.0	0.0	0.0
Total Mobile	18.8	15.0	66.6
J. Total Other	0.0	0.0	0.0
Grand Total	34.5	100.0	60.0

1979 JCR Arson \$ Loss Summary By Property Type

City 70

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	26.41%	12.68%	\$3,978
B. Other Residential	18.86%	8.29%	\$3,641
C. Storage	5.84%	42.66%	\$60,393
D. Industrial/ Manufacturing	1.13%	1.64%	\$12,058
E. Other Commercial	6.41%	26.20%	\$32,506
F. Community/Public	7.16%	4.52%	\$4,992
G. All Other Structure	0.56%	0.08%	\$1,200
Total Structure	66.41%	94.88%	\$11,829
H. Motor Vehicles	11.88%	4.43%	\$3,093
I. Other Mobile Property	0.94%	0.11%	\$973
Total Mobile	12.0%	4.55%	\$2,937
J. Total Other	7.0%	0.56%	\$226
Grand Total	100.0%	100.0%	\$8,280

1979 UCR Arson Structural Loss Summary

City 70

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	39.77%	27.85%	13.37%
B. Other Residential	28.40%	8.0%	8.74%
C. Storage	8.80%	22.58%	44.96%
D. Industrial/ Manufacturing	1.70%	33.33%	1.73%
E. Other Commercial	9.65%	14.70%	27.62%
F. Community/Public	10.79%	15.78%	4.55%
G. All Other Structure	0.85%	0.0%	0.08%
Total Structure	100.0%	19.03%	100.0%

1979 UCR Arson Clearance Summary

City 70

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	52.14%	33.79%	27.39%
B. Other Residential	46.00%	21.29%	13.04%
C. Storage	29.03%	4.16%	55.55%
D. Industrial/ Manufacturing	33.33%	0.92%	50.0%
E. Other Commercial	20.58%	3.24%	57.14%
F. Community/Public	44.73%	7.87%	58.82%
G. All Other Structure	33.33%	0.46%	100.00%
Total Structure	44.03%	71.75%	30.32%
H. Motor Vehicles	14.28%	4.16%	33.30%
I. Other Mobile Property	20.00%	0.46%	100.00%
Total Mobile	14.70%	4.62%	50.00%
J. Total Other	40.80%	23.61%	37.0%
Grand Total	40.75%	100.00%	32.90%

1980 UCR Arson \$ Loss Summary By Property Type

City 70

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	36.7	18.8	9,963
B. Other Residential	10.8	3.6	6,480
C. Storage	8.6	11.6	26,288
D. Indust./Manuf.	0.5	0.9	33,180
E. Other Commercial	6.2	7.3	22,926
F. Community/Public	11.8	6.3	10,458
G. All Other Structure	0.9	0.03	687
Total Structure	75.5	48.6	12,512
H. Motor Vehicles	10.6	0.7	1,208
I. Other Mobile Property	1.4	0.5	6,886
Total Mobile	11.9	1.2	1,911
J. Total Other	12.6	50.2	77,642
Grand Total	100.0	100.0	19,440

1980 UCR Arson Structural Loss Summary

City 70

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	48.6	41.0	38.7
B. Other Residential	14.3	7.0	7.4
C. Storage	11.3	38.0	23.8
D. Indust./Manuf.	0.7	0.0	1.8
E. Other Commercial	8.2	29.0	15.1
F. Community/Public	15.6	12.0	13.0
G. All Other Structure	1.2	0.0	0.1
Total Structure	100.0	29.0	100.0

1980 UCR Arson Clearance Summary

City 70

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	36.7	37.0	32.0
B. Other Residential	34.9	11.7	17.0
C. Storage	25.8	6.9	82.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	27.0	5.2	54.0
F. Community/Public	26.4	9.7	66.7
G. All Other Structure	57.1	1.2	25.0
Total Structure	30.8	72.1	40.0
H. Motor Vehicles	22.0	7.3	22.0
I. Other Mobile Property	36.3	1.2	100.0
Total Mobile	24.0	8.5	31.0
J. Total Other	49.0	19.4	48.0
Grand Total	32.1	100.0	41.0

1979 UCR Arson \$ Loss Summary By Property Type

City 87

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Occupancy Residential	22.0%	25.2%	\$5,437
B. Other Residential	15.9%	5.7%	\$1,695
C. Storage	6.3%	21.0%	\$15,666
D. Industrial/Manufacturing	0.98%	16.9%	\$81,750
E. Other Commercial	8.8%	5.8%	\$3,137
F. Community/Public	9.3%	1.5%	\$765
G. All Other Structure	3.2%	3.8%	\$5,654
Total Structure	66.0%	79.9%	\$5,696
H. Motor Vehicles	19.4%	4.4%	\$1,072
I. Other Mobile Property	1.5%	15.5%	\$50,208
Total Mobile	21.0%	19.9%	\$4,541
J. Total Other	12.5%	0.18%	\$69
Grand Total	100.0%	100.0%	\$4,752

1979 UCR Arson Structural Loss Summary

City 87

	% Of All Structural Arsons	% Of Vacant Structures	Total \$ Loss
A. Single Occupancy Residential	33.0%	24.4%	31.6%
B. Other Residential	23.8%	0.0%	7.1%
C. Storage	9.6%	3.8%	26.3%
D. Industrial/Manufacturing	1.4%	0.0%	21.1%
E. Other Commercial	13.2%	2.8%	7.3%
F. Community/Public	13.9%	0.0%	1.9%
G. All Other Structure	4.7%	7.7%	4.7%
Total Structure	100.0%	9.2%	100.0%

1979 UCR Arson Clearance Summary

City 87

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Occupancy Residential	12.2%	31.4%	18.0%
B. Other Residential	10.7%	20.0%	0.0%
C. Storage	3.8%	2.8%	0.0%
D. Industrial/ Manufacturing	0.0%	0.0%	0.0%
E. Other Commercial	5.5%	5.7%	0.0%
F. Community/Public	28.9%	31.4%	18.4%
G. All Other Structure	77.0%	2.8%	0.0%
Total Structure	11.4%	88.5%	29.0%
H. Motor Vehicles	3.8%	8.6%	33.3%
I. Other Mobile Property	0.0%	0.0%	0.0%
Total Mobile	3.8%	8.6%	33.3%
J. Total Other	0.03%	2.9%	100.0%
Grand Total	8.6%	100.0%	31.4%

1980 UCR Arson \$ Loss Summary By Property Type

City 87

	% of Total Offenses	% of \$ Loss	Average \$ Loss
A. Single Family Residential	18.0	32.8	8,864
B. Other Residential	12.8	21.1	8,180
C. Storage	4.3	4.2	4,873
D. Indust./Manuf.	1.1	0.09	430
E. Other Commercial	13.6	15.9	5,775
F. Community/Public	10.4	17.9	8,474
G. All Other Structure	4.5	0.9	\$7,102
Total Structure	64.7	92.0	7,102
H. Motor Vehicles	21.3	4.1	906
I. Other Mobile Property	1.3	0.56	2,192
Total Mobile	22.6	4.6	1,030
J. Total Other	12.8	2.4	920
Grand Total	100.0	100.0	4,944

1980 UCR Arson Structural Loss Summary
City 87

	% Of All Structural Arsons	% Vacant Property	% Of Total Structural \$ Loss
A. Single Family Residential	28.0	17.4	35.0
B. Other Residential	20.0	0.5	22.7
C. Storage	6.5	0.5	4.5
D. Indust./Manuf.	2.0	20.0	0.1
E. Other Commercial	21.0	2.0	17.1
F. Community/Public	16.0	2.0	19.2
G. All Other Structure	6.5	5.0	1.0
Total Structure	100.0	7.6	100.0

1980 UCR Arson Clearance Summary
City 87

	% Clearance Rate For Each Prop- erty Type	% of Total Clearances	% of Juvenile Clearances
A. Single Family Residential	8.1	11.6	14.0
B. Other Residential	21.6	22.0	7.7
C. Storage	0.15	0.05	33.0
D. Indust./Manuf.	0.0	0.0	0.0
E. Other Commercial	25.0	27.0	25.0
F. Community/Public	26.5	22.0	62.0
G. All Other Structure	0.15	5.0	33.0
Total Structure	18.0	92.0	29.0
H. Motor Vehicles	2.0	3.0	0.0
I. Other Mobile Property	0.0	0.0	0.0
Total Mobile	1.9	3.0	0.0
J. Total Other	0.05	5.0	33.0
Grand Total	12.7	100.0	28.3

APPENDIX 5.3
PROCEDURES FOLLOWED IN TYPICAL ARSON
INVESTIGATION

5.3 Outline of Procedures Followed in Typical Arson Investigation

Having reviewed a number of techniques and considerations involved in an arson investigation, an outline of the observations that need to be brought out in the case documentation bears emphasizing:

1. Reporting Points

Report on the exterior of the premises as appropriate. This may show why the investigator was directed to a specific part of the building that may be in question and also gives the investigator the opportunity to observe the presence of any utility fixtures and pipes.

Trace the spread of the fire. The investigator will normally start at the area of least damage and work toward the area of heaviest damage. Report the salient characteristics of the fire's growth, behavior.

Comment on the heat patterns. The investigator will normally look for the point where the burn pattern has taken the shape of a funnel. Heat will leave a pattern on the structure and contents as the fire progresses from the point of origin.

Comment on the ceiling and roof area. Usually, the ceiling or roof above the spot where the fire started will show evidence of intense heat as heat and gases rise.

Locate the area(s) of heaviest damage. Describing how the area of heaviest damage was derived will enable those reviewing the case to know how the investigator arrived at the point of origin.

Indicate the point of lowest burning. Many times, the lowest point of burning will be in the area where the concentration of heat at the ceiling or roof is the greatest. Once the investigator has determined the lowest point of burning, he will then be able to localize and logically appraise any heat sources capable of igniting the material present at the point of origin.

Describe the types of charring. A fast, hot fire will normally leave round shiny blisters or alligatoring. A slow burning fire will normally leave a baked appearance to the burn material.

Check and report the char depth, tying in the point of sampling to photographs.

Report the reconstruction of the scene. The reconstruction of furniture and contents in the room or building will also assist in establishing and reviewing the point of origin.

Establish and report the burning time. It will often be necessary to obtain information from witnesses concerning the length of time the fire was in progress. Compare and contrast to burn indicators and char evidence.

Describe the facts surrounding the taking of photographs, collecting and preserving evidence, etc.

Interview witnesses; list and highlight.

2. Importance of Establishing Point of Origin

Establishing the point of origin will assist:

- the determination of the true fire cause
- the investigator in placing responsibility and blame for the fire
- the investigator in disproving statements made by persons involved in the act, either through civil liability or criminal act.

3. Accurately Determining and Convincingly Communicating the True Fire Cause May Require Reference to:

- flash point of flammable liquids
- ignition temperatures of incendiary solids, furniture, carpeting, etc.
- melting points of glass, plastic, and various metals.

The investigator, for example, may determine that on the basis of the incendiary materials present, an insufficient temperature was reached to lead to the melting of certain types of materials found at the fire site. If melted glass or plastic is found, this may indicate a very intense hot fire that would not normally be achieved through the combustion of the furniture, carpeting, or other materials present.

- fire behavior and how heat and fire are transmitted and travel.

4. Fully Reporting Other Signs of Arson and Arson Fraud

- The fire, itself - upon arrival at a fire scene, the investigator may see patterns in the fire, such as color, intensity of travel, etc., that arouse suspicions about the fire cause. For example, black smoke generally indicates a lack of air, but if accompanied by large flames, generally indicates burning of a material with petroleum base. Reddish brown, thick yellow, or brownish-yellow smoke is an indication that films or substances containing nitrocellulose fiber, sulphur, or sulfuric nitric or hydrochloric acid are burning.

Locked doors, obstructed entrance ways and passages point toward an effort to impede firemen in their attempts to fight the fire.

- The spectators - firefighters arriving at the fire scene may have observed people who have been seen at other suspected fires. Also, the owner, landlord, or occupants of the building may be observed coming to and from the fire.
- The occupancy - the investigator will analyze the relation to occupancy and previous incendiary fires.
- Inoperative sprinklers and fire doors - often, an arsonist will silence water-flow alarms, shut off supply valves on sprinkler systems, or tamper with fire doors and wire-glass windows, which are normally used to stop the rapid spread of fire.

- Burn patterns and types of charring - the application of petroleum products on floors or other materials can cause a deep, unnatural burning. The char pattern of petroleum products or other highly flammable materials poured or splashed on a wall or floor will burn in the pattern of the liquid or material it is splashed on.
- Separate, unconnected set fires - separate, unconnected fires burning at the same time is normally considered prima facie evidence of arson.
- Holes in ceiling, walls, and floors - many times, arsonists will knock or cut holes in ceilings or walls to expose the lath and studs in an attempt to spread the fire. Holes that are found in walls or ceilings are often put there by arsonists to increase a draft and aid the spread of the fire.
- The presence of accelerants - the unexplained presence of chemicals, gasoline, kerosene, cleaning solvents, alcohol, paint thinner, acetone, ether, or any other type of flammable material that may be used to intensify and accelerate the spread of a fire.
- Incendiary devices - these devices are strong evidence that a fire was of incendiary origin and committed by an arsonist. Any type of device, such as a match-delayed fuse, that is used to cause delayed ignition (allowing the arsonist time to get away and establish an alibi) is considered to be an incendiary device.

- Trailers - a trailer is a term used to refer to an arrangement of combustible materials resembling a rope that is used to spread fire from one area to another.
- Residues of wax or paraffin - candles are frequently used as igniters or plants and/or trailers.
- The removal of property prior to the fire - it is common to find that items of great personal, sentimental, or monetary value, such as family bibles, furniture, patents, wills, jewelry, or accounts receivables will be removed and not allowed to burn in a fraud fire.

The investigator who is competently fulfilling his responsibilities should so document his investigation that upon review, both supervisor and prosecutor know the logical deductive steps that occurred, their order, and their result. This entails eliminating the reasonable likelihood of any other cause and carefully offering the facts before and in support of any conclusions.

Although the possibility that one day such documentation may prove critical is sufficient reason in many cases, the professional integrity of the investigation provides its own justification. Like the pre-flight checks of the professional pilot, while routine, they are an effective antidote to the pervasiveness of human error. Such cross-checks need not be narrated at length nor add significantly to the time it takes to investigate or report the cause, but they must be a part of the disciplined routine of the professional investigator.

After the arson investigator has completed his onsite efforts, he should be in a position to testify concerning when the fire occurred; where it occurred; what caused the fire; and whether the fire was the result of a natural act, a careless act, or an intentional act. It is also important for the investigator in a civil or criminal case to bear in mind that he should work carefully with the legal counsel chosen by the insurance company or the prosecutor's office so that he can meet with this individual to discuss all evidence developed. The attorney involved should know exactly what requirements of proof will be necessary to prove the case and should be able to assist the investigator in the development of evidence to fulfill those requirements. Counsel can also advise the investigator as to the weak points in the investigation so that those areas can be strengthened while the original investigation is under way and the evidence and facts are fresh. (Primrose, The Investigator's Approach to a Potential Arson/Fraud Case, 31 Fire Insurance Counsel Quarterly, pps. 167-171 (1981).

APPENDIX 5.4.

THE "UNDETERMINED" FIRE CAUSE PROBLEM

A PRELIMINARY REPORT

8 September 1980

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This preliminary report is provisional. It is based on limited empirical data rather than statistical analysis. The research team is confident that even though issues discussed in this paper come from only 6 of the 10 study sites, they represent valid issues and situations common to the dynamics of other communities arson control system. Results of our remaining site visits, further data analysis, and discussion with local and national experts in the field may substantially modify our present understanding of these issues, nevertheless we are pleased to offer the following provisional observations about the fire cause classification process.

I. INTRODUCTION

As a specific work element in the Arson Control Study, the research team has been asked to study and document how fire department personnel in ten cities determine and report probable ignition factors for departmental fire incident reports. Fire incident reporting is important because it documents information about the fire incident and the department's response activities. This information can be used on the local level for:

- a) management and supervision
- b) planning evaluation
- c) legal requirements, both criminal and civil
- d) archival purposes

At the state and national level, data from many departments can be analyzed to spot fire trends and problems.

One of the most crucial pieces of information that can be recorded about a fire is the ignition factor - the act or omission responsible for the fire's occurrence.

Two national fire incident reporting systems, the USFA's National Fire Information Reporting System (NFIRS) and the private system on which it is based, the National Fire Protection Association's Uniform Fire Incident Reporting System (UFIRS), perform this service. Over the past five years both systems have contributed to a more complete understanding of the size and nature of America's fire problem.

Despite the improvement in national fire data, major questions remain about fire cause. There are two main reasons that more is not known about the causes of fire.

First, determining fire cause remains more an art than a science. Even Sherlock Holmes would have to admit that in many fire scenes, determining cause is not "elementary." Not only does it require skill and imagination to reconstruct the scene before the fire, it often requires teamwork between fire fighters, investigators, the police, forensic laboratories, and other agencies to discover the true cause of the fire.

Second, fire causes have to be accurately recorded at the local level and reported through the State to the National level. While seemingly a simpler problem, this second factor controls the quality of the information acquired and disseminated about the fire. Any weakness in the fire incident reporting system can jeopardize the validity and reliability of the reported data as surely as a break in the chain of evidence can prejudice an otherwise sound criminal case.

Without accurate fire cause data, fire prevention needs can not be precisely determined nor the performance of fire prevention efforts gauged. Indeed, an argument can be made that America's current arson epidemic might not have reached its present proportions if arson's rate of growth during

the early seventies could have been measured and confidently reported to decision makers.

In 1977, the National Fire Data Center estimated that 13% of reporting departments classified structural fires as "undetermined" on NFIRS reports. These same fires constituted 29% of the total direct structural dollar loss. Not knowing what caused roughly one-third of the structural loss has meant that even the experts must conjecture about the true nature of these fires. What makes matters worse is that from the present reporting system it is impossible to determine why, in what way, or in whose opinion (reporting officer or investigator), the fire's ignition factor was undetermined; why, or in whose opinion the fire's cause could not be determined; or after how much investigative effort the fire's cause could not be found. To illustrate this point, the following are some of the ways why a fire's cause could be listed as undetermined:

- No investigation was conducted - either the fire was too trivial or other limitations or priorities denied a thorough post fire investigation
- Only a cursory investigation was attempted with no cause singled out
- The fire officer completing the report may have suspected a cause, but chose to list it as undetermined (for example, to avoid court appearance or to avoid "the hassle" of make-work paper shuffling)
- The fire was still under investigation at the time the report was completed
- The fire investigation was completed, however two or more widely different causative factors/actors may have been responsible; e.g., either children playing with matches or incendiary might have caused the fire, or mechanical defect or operator deficiency.
- The fire's cause might have been listed as undetermined or left blank in the initial report but not subsequently updated during the editing phase.
- Coding error
- Departmental policy or convention in certain circumstances (such as large loss fires) the departmental policy may require fire officers to use this term to forestall any legal complications in a civil or criminal case

These and perhaps other mistakes and misusages contribute to the "undetermined" cause problem. Unfortunately, there is no way under the existing coding system to detect to which of the many meanings this catch-all term "undetermined" and its several coding variants (00,99,90 primarily) refers. In practice, a catch-all is a phrase with wide variation in definition and usage; and the difference in definition and usage can be extremely important. For example, if, as some experts conjecture, fully one half of all fires classified as undetermined are in

fact due to arson, then incendiary fires are far more numerous than those classified as such by reporting cities. If, on the other hand, the frequent usage of this term is used for undetermined fires that were, in fact, merely under investigation at the time the fire officer completed his field incident report, the final cause classification simply may not update the initial undetermined classification. If this second scenario proved correct, then attributing half the undetermined fire to incendiary causes would be in error. Since national fire prevention and arson control policies are developed in part on such estimates, the determination of which, if either, of these hypotheses is correct is not a trivial matter.

It is beyond the scope of this project to attempt to evaluate, statistically, all error modes or their frequency, or to enumerate all the factors that can contribute to these coding errors. Instead, the study seeks to determine on an empirical, experiential basis how the cause and origin of a random selection of 1300 fire incidents was determined. This is being done by a retrospective record audit supplemented as necessary and as possible by personal interviews with the actors involved (such as the officer completing the initial fire incident). The research team will also observe to see if the formal procedures established in each jurisdiction are carried out in the incidents reviewed. The team's assessment will include an analysis of how and to what extent local policy and procedures either strengthen or weaken the consistency and accuracy of cause and origin reporting data and to see how and to what degree these practices are supplying data artifacts to state and federal data collection systems artifact in the cases selected for review.

II. BACKGROUND SUMMARY OF NATIONAL FIRE INFORMATION REPORTING SYSTEMS: UFIRS/NFIRS

The Uniform Fire Information Reporting System is presently undergoing its third revision. As conceived and developed by the National Fire Protection Association, the system's aim was to be a nationwide, voluntary, data collection and management information tool. Subscribers receive procedural manuals on how to use the system, and software packages for canned data analysis routines. Essentially the National Fire Information Reporting System is a simplification of the "901" System developed in UFIRS. Indeed, the two systems share the same coding system and some departments submit data to both organizations. Because the NFIRS seeks a reduced amount of data on each incident, it may be fair to say it focuses on data elements critical to the definition of the national fire problem. That is not to say that departments can not use the fire incident report as the basis for a management information system; in fact, the NFIRS supplies participating states and selected cities with software and limited technical assistance to encourage the development of state and local management information systems. By contrast, UFIRS entails collection of data about a broader range of activities than incident response data and in more depth than NFIRS. Accordingly, the system can report in greater detail for both fire and non-fire activities.

Critics of both systems point out that the present generation of software packages lack flexibility in the kinds of data analysis. Even these critics would probably concede most departments have never explored, let alone exhausted, the potential of these basic management information systems.

Nevertheless, the basic coding structure of the 901 System is due for revision. The NFPA Technical Committee revising the 901 System has had its proposed improvements published in a Technical Committee Report. Chapter 1, the Ignition Factor Section of that report, presently proposes a single code: 00 to be used for all incidents involving "undetermined" and "unreported" ignition factors. In effect, this means that despite the problems experienced with this term's usage to date, the Committee has not favored any fundamental revision to address this issue. Treating "undetermined" and "unreported" ignition as one lump code is likely to increase the size of this catch-all classification. If no change is forthcoming this fall, the next scheduled revision will not take place until 1987.

III. "UNDETERMINED" CAUSE USAGE: INITIAL INDICATORS FROM SIX STUDY COMMUNITIES

Our review of the six study communities visited to date suggests a number of factors contribute to the "undetermined" cause problem. Despite the large number of contributing factors observed, it appears remedies do exist for the majority of the causes. Indeed, "quick fixes" are available on the local, state, and national level to significantly reduce the inappropriate usage of this ignition factor code. For example, in one of these cities during one year, 69 fires were initially reported on the 902 F Incident Report Forms as undetermined. Followup investigations reduced this number to 12 fires terminally classified as of "undetermined" origin. If this department had failed to update its incident reports before submitting its reports quarterly to the State's Fire Marshal's Office, the National Fire Data Center would have been led to believe that the undetermined fire cause rate in the one city was almost six times its true rate.

The following thumbnail sketches of the six cities visited to date provides some insight into the wide-ranging differences in fire incident reporting policies and practices in general and undetermined cause usage in particular:

- City A. Uses a local fire incident reporting system based in part, on insurance adjuster data needs, and in part, on an outmoded state fire incident reporting system (of historic interest, but of dubious value). Undetermined cause for structural fires comprised roughly 3% of all reported incidents. As in the other six cities, no cross-tabulation relating fire cause ignition factors to type of structure is available. The term "under investigation" is used, while "undetermined" or "unknown" is only rarely used.
- City B. Uses a local record keeping system based loosely on the 1974 UFIRS structure. The use of the term "Not fully ascertained" is a local convention used in place of undetermined. It is used to classify roughly 1% of the fire incidents. Field officers are supposed to phone in to obtain the results from the investigation. If the data field is left blank, the clerical staff is supposed to supply the missing information from the investigator's report.
- City C. Uses the 1976 UFIRS Coding manual. The Department assigns a Captain and two assistants to edit the data, and uses the City's Data Processing Center to process and forward quarterly reports to the State. While UFIRS-based printouts are available, there is no indication of management uses them in decision-making or arson case management. The main purpose seems to be for archival purposes (annual reports, press inquiries, etc.). The Code 00 is used in both the senses of "undetermined" and of "under investigation." The terms appear to be used interchangeably despite the semantic

distinction. Approximately 5% of building fires were classified in 1977 as undetermined in origin.

City D. Uses the 1976 UFIRS coding manual. As all fires are investigated, the reporting officer will ask the investigator for the cause or report it as under investigation. We observed that occasionally fire officers would imply in their narrative that two or more causes were under consideration, yet coding routinely would not reflect this undetermined status. In these cases incendiary, suspicious, or an accidental code all appeared more frequently than undetermined. In 1977, roughly 5% of all building fires were classified as undetermined following investigation. In 1979, this meant approximately 300 fires were classified as undetermined after investigation.

City E. Uses the 1974 edition of the 901 code. To make it easier for reporting officers to complete reports, the department provides each officer with an abbreviated listing of the most frequently used codes. The abbreviated guides include instructions to refer to the full 901 manual in the event that a particular situation is not accurately described by the codes in the guide.

In practice, fire officers seem to disregard this admonition and tend to use the codes in the guide to cover every incident. For example, the guide does not include an "undetermined" cause code. It may be for this reason that fire officers state the cause of fire as "undetermined" in less than 1% of all cases. By comparison, since the creation of an arson control squad late in 1979, the squad has experienced a 5% undetermined rate for fires, even after investigation.

Another feature of this system is that officers are instructed not to complete the narrative section before writing in the numerical code. When the staff began to review the field incident reports, they quickly saw that they could not make out the gist of the incident from the numerical entries alone. As a result the field officers were asked to briefly summarize the vital facts about the incident on the back of the form. As if they were simply not there, the spaces left for the narrative phrases in the 902 F form are not filled in.

City F. Uses the 1976 Edition of the 901 Standard. Both 00 and 99 codes are used to interchangeably refer to undetermined cause. The 99 code is also used to denote "deliberate burning" - a misdemeanor offense. Over the past 3 years, "undetermined" was cited as the cause in 18% of all follow-up investigations and accounted for 3% to 11.4% of all dollar loss estimates.

The marked variance in definition, frequency, and usage of the terms and codes for "undetermined" cause in the six communities visited to date suggests several tentative conclusions.

First, the cities visited to date appear to use the undetermined code less frequently than the 13% rate for structural fires suggested by the NFIRS 1977 data. This may simply be an anomaly due to the partial data available from the small sample of cities we are studying. It might also be due to the fact that cities with personnel assigned to determine cause and origin may be more likely to determine the cause of more fires than smaller departments. Since the overwhelming number of departments are small and without fully qualified in-house investigators, it seems reasonable that the bulk of the undetermined cause of fires would come from smaller departments.

Second, the variation in usage and definition of the term "undetermined" makes it difficult to make cross-community comparisons of the statistical rate for "undetermined" cause, and may mean that it will be difficult to sort out and accurately rank different causes of fires or make inter-city comparisons of causes with precision.

Third, City E's actions illustrate the degree to which fundamental aspects of a data collection system can be perturbed by local practices. Without quality control checks at the local and state level, and without sufficient technical resources to monitor and correct these shortcomings, the validity and reliability of the resulting national data will remain questionable.

Prior experience with other fire departments reinforce the findings to date that suggest that fire department administrations do not require more accurate or reliable data because typically it plays only a minor role in decision-making.

IV. CONTRIBUTING FACTORS TO FIRE CAUSE: MISCLASSIFICATIONS AND VARIATIONS IN USAGE

The factors that underlie the variations and the inaccuracies in fire cause terminology, usage, and coding can be categorized by their source as:

- system biases and limitations
- organizational biases and artifacts (both state and local)
- human factors and biases

Each of these three levels will be discussed separately below.

System biases and limitations

The NFIRS/UFIRS incident reporting systems represent a vast improvement over what existed (or to be more correct, didn't exist) before. Their fundamental soundness and their continued refinement should be recognized before discussing any potential shortcomings in either system. In fact, it is a tribute to both systems that the issues raised by this paper are relatively minor by comparison to the issues already addressed and solved by them. However, reporting departments frequently criticize both NFIRS and UFIRS. Some of the concerns frequently heard are:

- The complexity of the coding process (it requires initial familiarization and continuing motivation to get officers to comply with the multi-step reporting procedure -- in some ways the paperwork "evolution" is the most complicated "evolution" the fire officer at the company level has to face).
- The fine shades of meaning between various classifications (where is the line drawn between a child playing with matches and a juvenile intentionally setting fire? The 901 manual offers few definitions.).
- Difficulty in finding the terms and codes corresponding to the officer's own understanding of the incident ("where's the cross index in this damn thing?").
- The lack of clarifying examples or source of information such as a hotline service to assist in determining the right codes.
- The lack of a reporting system that feeds back useful information to the reporting level.
- Limitations in coding options (although there are some 15 unassigned codes available out of the 100 possible codes for ignition factors, there is no standard way to designate that a fire is under investigation. To cite another example in the 901 coding system, there is no code to indicate a service call to turn off a hydrant, seemingly one of the most frequent types of service call.

- The lack of adequate quality control resources. (The Uniform Crime Report Program achieved its standard of quality control through a multi-million dollar field audit program to verify data input and improve uniformity in reporting practices.) The present NFIRS system must rely on a far more modest program and will thus either have to be content with less reliable data or through innovations achieve a better return for every dollar spent for quality control.
- Lack of feedback from the state and federal levels. Because most reporting communities receive little useful direct benefit from participating in a state NFIRS system, fire incident reporting is widely perceived as an unrewarding chore with no payoff.

Organizational biases and artifacts (state and local)

At the state level the resources and the priority allocated by the state to provide accurate reporting and feedback to the participating jurisdictions seems to influence the overall reliability of the data. Aspects include training, editing and quality control, providing procedural manuals and technical assistance in the collection and use of the data. In the departments visited to date the personnel could not point to a single way in which the state's data collection program helped the department. The printouts and reports supplied to the department by the State failed to give meaningful insights to fire system decision-makers in their opinion.

At the departmental level, fire cause classification practices are influenced by many factors. Factors that have been most frequently noted are given below together with illustrative examples.

- Policy - Some departments alter the basic NFIRS/UFIRS reporting procedures by establishing policy to meet local "needs" or perceptions. Policy changes frequently arise out of a need for a quick fix for a perceived problem. This can often mean changes to procedures are made without full consideration of the ramifications of that action. For example, fire department management, in an attempt to avert a real or imagined legal problem, may establish the policy that when an investigator is called in the fire suppression officer completing the initial incident report will not make a cause determination. Yet to complete all the blanks on the report under this policy, the fire officer may resort to entering "undetermined" in the sense of the fire as not yet "determined" - i.e., still under investigation by the investigator. At the state and federal level fire incidents classified in this manner cannot be "crystal balled" by analysts to be a fire whose cause was in fact determined, but whose cause was never updated in an editing routine. At the other extreme, some departments in effect forbid an officer from recording any fire's cause as undetermined. While the intent might be laudable (presumably to discourage superficial investigation) frequently the effect has been to force fire officers to "manufacture" a cause or select a code that describes only one of the possible causes despite a strong ambivalence about the cause.

While both of the examples cited above represent distortions of the standard 901 system, the former can be a good practice as long as there is an effective editing process filtering out the undetermined cause codes as final determinations are made by the investigator; while the latter instance almost guarantees misclassifications that can not be caught and corrected without an airtight quality control and monitoring system. In both instances it should be remembered that management was trying to change the fire incident reporting process, rather than changing the underlying investigative practices that caused the initial concern.

- Allocation and organization of data collection resources to obtain accurate and useful management information in fire departments with more than 3,000 incidents per year requires; 1) adequate computer capability with flexible software, 2) adequate staffing in terms of programmers, data editors, and analysts, and 3) city policy on data processing (one multi-user system or department based computers). Our experience to date suggests that fire departments are neither demanding in terms of the quality and utility of the data; nor are they, as a class of municipal agencies, very appreciative of what is required to make a computerized data collection and analysis system work. To cite just one example, the fire service seems several years behind the police in appreciation of the value of management information systems.
- Training - fire cause determination and 901 reporting both require a significant training and refresher training commitment by the fire department. Most communities visited to date did not demonstrate this commitment. As a result, there appeared to be a marked variance in the quality of the data reviewed within each city.

While increased training commitments and improved training techniques may help, other means might be explored to supplement training. For example, a local, state, or national hotline number to help fire officers correctly encode incident reports might improve attitudes as well as the correctness of the data reported. Providing more definitions and examples and compiling a list of the most common mistakes made in coding fire incidents might, when distributed and reinforced by command level interest in accurate fire incident data, help others avoid the most frequent coding errors.

Human Factors and Biases

Even if national and organizational factors approached the ideal of perfect design and execution of a data management system, human factors and biases would creep in to lessen accuracy and reliability. Human factors range from accidental errors (such as selecting or entering the incorrect code) to deliberate miscodings (classifying a fire known to be suspicious as undetermined in the hope of ducking a court appearance).

Human factors may play a large role in the correlation between high loss fires and the reporting officer's tendency to state the cause as undetermined. In part, fire officers seem to be less willing to express their opinion as to probable cause when the stakes are higher (as in a high loss fire), the evidence harder to evaluate, or a determination is likely to result in the fire officer being challenged in court or second-guessed by the investigator. Fire cause determination may also be influenced by time and weather, and so be made less frequently between darkness and day-break and during inclement weather. Other conditions likely to affect reporting accuracy are self-confidence, experience, stress, fatigue, and negative behavioral states. These states may be in reaction to external conditions such as extremely high run rates, personality conflicts (especially those between line officers and investigative personnel), and poor morale or be part of the individuals make-up (attention to detail in selecting proper codes or a propensity to favor one cause over other possibilities in "tough call" fires).

V. RECOMMENDATIONS

The research team's experience to date suggests that the undetermined fire problem, though not totally soluble, can greatly be reduced through a combination of immediate and longer term actions. A partial listing of actions that could reduce the problem are offered below for review and comment. These preliminary findings should not be taken as representing the views of the IAFC, the IACP, or any sponsoring agency.

- 1 - Examine the legitimacy of the contention that initial incident report fire cause determinations have been used by the defense in arson trials to jeopardize the prosecution's case or have been used successfully in civil suits to embarrass or exact civil damages from fire departments. Senior officers frequently cite their belief that court cases have been lost due to discrepancies between initial and final fire cause classifications to justify using surrogate terms such as undetermined or under investigation. Fire officers need brief and authoritative guidance in this area to clear the air. Investigators preparing cases for presentation to prosecutors need guidance in how to brief the prosecutor on the fire cause classification process, its underlying rationale, and how to minimize any negative impact from official records containing two or more statements differing in their statement of cause.
- 2 - Develop and distribute a guide on fire incident data management, clearly detailing different, but sound, approaches to achieve high quality data input, quality control, and meaningful analysis. Available source material reviewed to date does not go into the details of how to set up and manage an efficient, and cost-effective system. Present guidelines seem to assume those responsible to set up and manage such systems have a sound understanding of NFIRS/UFIRS systems and their strengths and weaknesses, know what analytical needs and formats they desire, and have the management skills and means to achieve their objectives. Fire department managers might benefit from a trouble-shooting handbook that ties in the problems they may be having in running the department or obtaining adequate resources to the need for a functional management information system. At the next level down, line and staff officers need a planning methodology to show the relationship between records and reporting and fire suppression operational requirements. The guide should deal with the nuts and bolts of how to design and operate a sound data management program. Without an top-to-bottom, department-wide understanding of the need for and the benefits of better data, the needed commitments in time, training, cooperation between divisions, and personal effort will likely not take place.
- 3 - NFIRS/UFIRS software packages should be augmented by additional capability and guidelines to assist departments obtain greater flexibility in data manipulation and make it easier to run special studies, provide feedback to the company level, etc.

- 4 - In the 1982 edition of the 901 standard, efforts should be made to clarify terms and usages by the greater use of definitions and examples. To cite one example, the term "undetermined" should be redefined and additional codes adopted to differentiate between fires not investigated for cause, those under investigation, and those fires terminally classified as "undetermined". At present the lack of alternative definitions forces many different investigative statuses to be lumped under this single code. Three options are given in the following pages.

OPTION A - Add 4 Categories to Division 9. "Other Ignition Factors"

<u>Status Code</u>	<u>Code Definition</u>
91	Animal
92	Rekindle
93	Exposure fire
94*	Ignition Factor Undetermined, no investigation conducted
95*	Ignition Factor Undetermined, investigation requested or under investigation
96*	Ignition Factor Undetermined, investigation completed
97	Unassigned
98	" "
99	Other ignition factor, not classified above
90*	Other ignition factor, insufficient information to classify further,
00*	Not reported, no ignition factor reported

Note: An asterisk * indicates a new code

OPTION B - Add 5 Categories to Division 9. "Other Ignition Factors"

- 91 Animal
- 92 Rekindle
- 93 Exposure fire
- 94* Ignition Factor Undetermined, no investigation conducted
- 95* Ignition Factor Undetermined, investigation requested
- 96* Ignition Factor Undetermined, under investigation
- 97* Ignition Factor Undetermined, investigation completed
- 98 Unassigned
- 99 Other ignition factor, not classified above
- 90* Other ignition factor, insufficient information to classify further
- 00* Not reported, no ignition factor reported

OPTION C - Open Up the the Remainder of the 0 Division

- 01* Ignition Factor Undetermined, no investigation conducted
- 02* Ignition Factor Undetermined, investigation requested
- 03* Ignition Factor Undetermined, under investigation
- 04* Ignition Factor Undetermined, investigation completed
- 05 Unassigned
- 06 Unassigned
- 07 Unassigned
- 08 Unassigned
- 09 Ignition Factor Undetermined, not classified above
- 00 Not reported, no ignition factor reported

5 - The National Fire Data Center should consider conducting a special study of undetermined cause fires. The study should evaluate the frequency of the usage of undetermined codes (00, 90 and 99) and the rationale for their selection in a select number of cities. Such a study could be done by personal interview or by mail. The study results could be used to precipitate the usage of "undetermined" into its component meanings as an aid to establishing the spectrum and frequency of usages in a representative sample of communities. Knowledge gained about such data artifacts could be disseminated to NFIRS users together with suggested coding revisions.

6 - For the residual undetermined cause problem, a hotline system, computer network, or other systematic information transfer mechanism should be developed (perhaps by the National Fire Academy) to permit information querying and exchange on fire investigation. For example, an investigators only clue may be finding the district odor of rotten eggs at the point of origin. What significance might this odor have and what further steps should the investigator take? At present, such a case may dead-end prematurely because the investigators' limited contacts may not supply him with ways to follow up this finding. A national system to share special fire cause information and suggest investigative decision paths based on known facts of the fire is not available. Such a system would promote fire cause determination and information to help the investigators up with the latest incendiary trends, modus operandi, and characteristics.

The "undetermined cause" problem is made up of "real world" factors that bedevil any attempt to develop a national data base. When broken down to its constituent factors, the problem appears soluble. Whether or not a sufficient effort can be made and maintained to reduce the size of the problem down to an acceptable level remains to be seen. At issue, though, is more than this single "gray area" in national fire incident statistics. For if this problem can't be successfully addressed, is not the question of the reliability and availability of the entire system in question?

Comments on this report are earnestly sought and will be gratefully appreciated.

5.5 CITY SPECIFIC FINDINGS

The following section extracts highlights of the follow-up investigation process from the individual city reports developed as interim products of the research: standard follow-up practices, workload, and arson clearance data are examined. Other features of each city's follow-up practices are discussed as warranted; i.e., personnel issues, management, and anti-arson programs.

City 17:

Prior to August 1979, follow-up investigation to determine who might have committed an arson crime was the responsibility of the arson detectives. These detectives worked under a separate organization and authority than fire investigators. After August 1979, four arson detectives were detached from the bomb and arson squad in the police department and informally detailed to the fire department.

Joint Operations.

The fire investigators and arson squad detectives assigned to the Fire Department to develop the joint team concept are, with rare exceptions, able and dedicated to developing a system which will more effectively combat arson. The problems they face are varied, complex, and long-range. Each career field has unique career and operational problems which must be recognized and resolved by top management before being successfully merged into a smooth joint operation.

City 17 Reported Fire and Arson Data

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Total Number of Fires Investigated	1,520	1,490	1,880	1,830
Total Number of Fires Determined Arson	840	739	800	657
% of Fires Determined Arson	55%	49.8%	40.5%	36%
Total \$ Loss Reported	12.38M	10.27M	18.81M	27.1M
Total \$ Loss Reported To Be Arson	5.24M	3.29M	5.97M	10.16M
% \$ Loss Arson	42%	32%	31.7%	37.5%
Average \$ Loss All Fires	N/A	N/A	N/A	N/A
Average \$ Loss Arson Fires	6,238	4,451	7,463	15,464

Note: Data reported to UCR is significantly different; for example, 1980 estimated property damages reported to UCR equalled only 4.39 million versus Fire Department estimates of 10.16 million.

As the table above shows, between 700 to 840 police investigations have been initiated each year since 1977. Only a fraction of these reported arsons have received follow-up investigations.

In the main, detectives begin their effort by reviewing the previous day's fire investigation reports. During this period, the sergeant supervising the bomb and arson squad was responsible for review. Currently in the revised joint team, the four detectives rotate the responsibility for reviewing the fire investigator's reports to determine if the facts constitute the finding that a crime occurred. Also, under the present arrangement, if the detectives conclude that further investigation is not warranted, the report will be bucked back to the arson unit's second-in-command so that consensus on the case's follow-up action can be maintained.

Prior to the adoption of this feedback loop, fire investigators would not know whether a follow-up investigation had been conducted. Likewise, detectives were free to wonder when the fire investigators were going to connect their repeated mistakes in discovering and documenting the commission of a crime. In arson, ideal conditions exist for finger pointing "at the other guys."

The table below shows the extent to which follow-up investigations are procedurally the responsibility of police investigators. In practice, post-scene investigations were often the responsibility of the fire investigators. Fire investigators typically worked the promising cases needing more "leg work" to establish the crime or a suspect.

City 17 Follow-Up Investigation Responsibilities

<u>Function</u>	<u>Responsibility</u>	<u>Remarks</u>
Securing Search Warrants	Arson Detectives	
Perform Record Searches	Joint Fire & Police Investigators & Insurance Companies (PILR)	In 1980, Training in Crime Analysis led to the arrest of a pyromaniac responsible for more than 20 fires
Interviewing Suspect Identification Efforts	Arson Detectives	
Obtaining Arrest Warrants	Arson Detectives	
Exchanging Intelligence	Limited intra-state and interstate between law enforcement agencies	
Conducting Surveillances	Fire Investigators and Arson Detectives informally work out arrangements on a case-by-case basis	
Arresting Suspects	Patrol Officers and Arson Detectives	
Preparing and Requesting Complaints	Arson Detectives	
Preparing and Forwarding UCR Data	Fire Investigation Staff Initiates Review and Forwarding by Police	

Follow-up investigation begins with the bomb and arson unit supervisor logging in the case and assigning the case, by notation, to a detective.

Case Assignment and Reassignment.

Each investigator, in effect, manages his own caseload. In an estimated 80% of the cases, the assigned detective manages the case to its final disposition. In the remaining 20% of the cases, the supervisor may

have to reassign the case. Reassignment was the chief "management" initiative taken by the sergeant in charge.

Case Documentation.

Arson detectives initiate complaint reports in roughly 31% of the incidents referred to them. Police case files are well-documented. Unsupported conclusions or statements of opinion are few.

City 17 follows the usual police practice of original complaint/offense reports updated as necessary by supplemental reports. Well-conceived and laid out forms exist for all basic requirements and are maintained in a thoroughly professional manner. During our review, certain files could not be accessed due to storage restrictions, and other files were not completely updated. Nonetheless, documentation was above average in these respects in comparison to other sites studied.

The department's guidelines regarding priorities and detailed explanations for use of UCR definitions of clearance are clear and logical. A review of case documentation showed that the detectives are in compliance with these guidelines. It is interesting to note that despite the clear necessity that the guidelines be followed, they are not mandatory and are offered more as suggestions than instructions.

Requirements for Case Documentation.

The District Attorney's office developed a pre-filing checklist for use by officers prior to submitting a complaint. This form furnishes the prosecutor with an excellent summary of the status of the investigation; whether proper authority has been granted for certain techniques, i.e., electronic surveillance and searches; necessary procedures; and some evaluation of the cooperation to be expected from witnesses and victim credibility. On its face, the form requires that it be executed by the investigating officer prior to submission of the case for a complaint. Our queries revealed that this form and procedure are seldom used in arson matters and is but one indication of lack of supervision of detectives on this squad and their tendency toward "free-wheeling."

Arson Statistics.

For the calendar year 1979, City 17 reported 1,021 arson offenses to the FBI. The Police Department activity report to the City Manager lists 1,021 reported to the police with the total of 69 cleared -- 59 by arrest (as compared with 58 in 1978). It appears that these numbers include offenses and clearances reported to police patrol personnel that were too minor to require that fire fighters be called out.

The March 1980 Activity Report to the City Manager reveals a total of 201 arsons, compared to 190 through March 1979. The clearances to date are 21, with 12 by arrest, as compared to 22 cleared in the same period of 1979, with 15 cleared by arrest.

Preliminary figures available through 1980 reveal total arsons of 251, with 33 clearances and no additional detail.

A review of fire investigation activity logs for a five-month period in 1980 discloses the following activity level and frequency rates:

Fire Investigator Activity Log For a 5-Month Period in 1980

		% Of All Incidents	% Of All Criminal Offenses
Total No. Investigations	595		
Complaint Reports Initiated	185	31	
Photos Taken	207	34	
Drawings	4	0.7	2.1
Witness Statements	7	1.1	3.8
Evidence Taken	20	3.3	10.8
Evidence Submitted	10	1.7	5.4

This data suggests the degree to which physical, testimonial, and documentary evidence is actually taken. We believe that these reported rates fall far below what many observers would generally estimate them to be.

Fire Investigation Monthly Time Log Summary

	Hours				
	Sept.	Oct.	Nov.	Dec.	%
<u>Initial Investigation (12.6%)</u>					
Fire Scene Examination	32.0	105.0	103.0	60.5	12.6
<u>Follow-Up Activity (51.1%)</u>					
Evidence Processing	2.5	15.0	12.5	5.5	1.5
Arson Investigation Follow-Up	36.0	106.0	125.5	56.3	13.6
Complaint Signing	4.0	5.0	6.5	2.5	0.7
Suspect Interviewing	11.8	49.5	39.5	0.0	4.2
Search Warrants	0.5	0.0	0.0	0.0	0.02
Surveillance	8.5	24.0	6.0	18.0	2.4
Court Appearances	0.0	10.0	0.0	5.0	0.6
<u>Administrative Activities (36.3%)</u>					
Reports and Records	86.5	240.0	215.0	185.5	30.6
Prevention Inspection	0.5	4.0	1.8	15.0	0.9
Training Received	4.0	8.0	6.0	21.0	1.6
Instruction Given	12.0	8.0	45.0	10.0	3.2

By compiling investigator time logs for a four-month period in 1980, we were able to develop the following breakdown on fire and police

investigator combined activity in City 17's joint unit. The accompanying table shows that for every hour spent on an on-scene investigation, some four hours are spent in follow-up activity, and some three hours in administrative efforts. No other joint unit maintained comparable data; accordingly, we are unable to compare this data to see whether this is representative or deviant from the norm.

Performance.

Although 59% of those cases sampled from City 17's files terminated when the initial fire investigator filed his report, some 41% received follow-up investigation. Of these, 22% ended before arrest, and 19% terminated in arrest. So, roughly half the cases pursued past the initial scene ended in arrest or other clearance.

During the three-year time frame of the study, first two, then four, investigators were assigned to handle the roughly 700 cases assigned per year. Handling this caseload, would, even under the best of circumstances, require at least this number of well-motivated investigators trained in good case management practices. Our analysis of cases showed that follow-up investigative practices did not take place under these charmed circumstances.

Follow-up investigations seek the additional information to identify the suspect(s), and put them on the scene with the means and motives to commit the crime. The two main sources for accomplishing this are testimonial evidence and information gathering (typically from files, government and private industry sources). In both of these areas, City 17 experienced some difficulty. The amount of testimonial evidence gathered was slightly above average (mostly due, it seems, to the careful gathering of fire and police officer statements). On the other hand, the critical type of testimonial evidence from bystander/witnesses or suspects was gathered less frequently than any other city studied. In other types of follow-on activity, City 17 did not fare much better. For example:

Type Weakness In Case Development	Rate of Occurrence	Overall Inter-City Ranking
• Interview not Correctly Conducted or a Timely Manner	18%	2nd
• Vicinity of Scene not Canvassed for Witnesses/Further Information	24%	1st (38% of all such weaknesses)
• Investigative Findings or Documentation Inconsistencies		Tied for 1st (25 % of all such inconsistencies)
• Failure to Check Records/Files/Background Data	18%	Tied for 1st (25%)

Specific weaknesses in cases reviewed included:

- In 1978, failure to provide insurance adjusters with information on inflated damage claims for personal property that investigators had established was not in the fire area.
- In 1979, a witness implicated the owner in an arson of a "strip joint", but a less-than-exhaustive follow-up investigation left several leads unresolved (including footprints and insurance information).
- An initially thorough investigation of a large school fire with good leads was allowed to die without documented justification.

In these and like instances, other priorities or exigencies may have existed that were not documented or recalled. It is also important to bear in mind that in all spheres of endeavor, there are "dropped stitches" or fumbles in execution. In City 17, a pattern seems to emerge from the comparison of cases ending in arrest versus the uncleared cases.

Follow-up investigative practices in City 17 boiled down to one of three modes:

- Unless a suspect was identified shortly after the fire, little follow-up could be expected.
- If a suspect could be identified, follow-up would be initiated. Unless a corroborating witness or the suspect's confession was forthcoming, the case would be inactivated as "pending."
- If a suspect was identified and later confessed or a witness found, it was probable that the subject would be arrested.

Despite this highly selective pattern of conditions under which an arrest would result, successful prosecution did not follow in two of the five cases that ended in trial. The majority of charges pressed in the cases ending in arrest was for second or third degree arson. A high percentage of charges was reduced from second to third degree or from felony arson to the misdemeanor of reckless burning. Undoubtedly, City 17's prosecutorial policies were cited by prosecutors as weakening several of these results or actions. Case documentation and follow-up investigation also played a part.

The practices and their outcomes suggest that aggressive investigative practices, well-supervised and organized on a sound case management philosophy, could have increased clearances and prosecutions.

As previously noted, there is very little actual case supervision in the detective bureau, and no regular case review. There were numerous instances in which a case was placed in a "pending" status when it was

apparent that no future investigative action was contemplated, thereby creating an erroneous picture of workload as contrasted with case load. Cases with workable leads inexplicably died. Not only less serious, but also major cases (especially vehicle fires), were left half completed. During 1978, a series of bombings may have accounted for some of these aborted investigations, but this explanation cannot account for the pattern that ran through all three years.

Use of Uniformed Patrol Personnel.

Uniformed patrol personnel were used chiefly during initial response to fire scenes and occasionally for arrests of suspects. Under procedures revised in late 1980, patrol personnel would assist fire investigators; and, if arson detectives were not available to respond to the scene of an established arson patrol personnel would initiate the investigation.

Follow-Up Investigation/
Over-Dependence on the Polygraph as an Investigative Tool.

The frequency of use during this period seemed to indicate that arson detectives had a tendency to over-rely on the use of the polygraph. While the polygraph is a useful investigative aid, it has the drawback of being unreliable and should not be allowed to become a substitute for thorough, penetrative investigation.

Physical Evidence Analysis - Relations With Crime Laboratory.

During 1978, investigators experienced a sudden increase in the number of samples submitted to the police laboratory that were returned as negative for hydrocarbons.

The purchase of a \$15,000 gas chromatograph in the laboratory in exchange for free evidence analysis has since occurred. No problems have currently been reported, although investigators concede they do not receive top priority at the police labs.

One explanation offered by fire investigators for the generally satisfactory relations enjoyed between themselves and the evidence analysis in the Police Crime Lab is that the analysts participated in drawing up the evidence collection, transfer, and storage procedures.

Arrests.

In every report reviewed in which a suspect had been arrested, the arrest was effected without consultation with the arresting officer's superior or a deputy district attorney. If the complaint is declined in such cases, the detective has wasted considerable time in an otherwise unnecessary procedure - booking, etc. The fact that the detectives are assigned points on arrest probably encourages this system to some extent. Unless special exigencies exist, arrests might be better processed with clearance by supervisory personnel and in consultation with a district attorney knowledgeable in the field. This should reduce the number of

complaint turn-downs and, thus, reduce the number of wasted investigative manhours.

Relations with District Attorney's Office.

The detectives advised that in the past, their relationship with the District Attorney's office had been distant and unprofessional. They considered it better at the time of the site visit, but with room for further improvement. There is very little personal contact between detectives and the deputy district attorneys, particularly prior to trial. The initial presentation of a case is through liaison and although there is an appeal process when a complaint is declined, this process is rarely invoked. In addition, the declination of prosecution by the District Attorney's office is, in many instances, couched in generalities.

The investigating officers should receive greater support from their ranking officers in those instances in which the prosecutor has declined to prosecute for vague or improper reasons. There is an existing avenue of appeal for such improper decisions, although seldom used, which never involves top management. This creates a morale problem for the dedicated officer and a crutch for the inefficient and incompetent investigator or attorney. Moreover, a ranking official should consult the District Attorney or Bureau Chief when it is evident that a particular assistant district attorney is habitually declining prosecution for non-specific or invalid reasons.

City 24:

Standard practice in City 24 calls for day-shift investigators assigned to a case, initially investigated by the night crew, to re-examine fire scenes investigated during the following day. This practice jibes with what appears to be a growing practice of beginning follow-up investigations by re-visiting fire scenes during natural light conditions. This practice seems to be the logical point to begin follow-up on the investigative process, whether the initial investigator remains with the case or it is reassigned. In several instances, evidence was found during daylight re-visits to fire scenes that investigators had missed the night before.

True, such evidence might prove inadmissible if later challenged in court by a shrewd attorney. But, this issue is a downstream problem compared to the need to insure that all investigative leads have been secured and that the initial cause determination is correct, both in general terms and detail. All too often, these fundamentals are not performed. In City 24, each two-man team, in effect, sets its own policy in this regard. Investigators who habitually revisit the scene pointed out that even when no new evidence is found, the investigators will have a better sense of the scene. Later, this knowledge could help the investigator cross-examine suspects and catch misstatements.

Priorities for case follow-up are not formally established, but among those investigators questioned, the general order of priority was agreed to be:

1. fatalities
2. major losses (in excess of 100,000)
3. cases with suspects (these cases were not supposed to sit longer than 48 hours without being worked, even if this meant reassigning the case)
4. minor cases with known suspects that deserved to be cleared.

Investigators also mentioned that cases receiving citizen call-ins were given additional attention as a matter of courtesy.

Finally, even fires without firm causes were worked until a cause, if possible, could be made. Indeed, undetermined fires routinely received higher priority than large-loss arson follow-ups. It could be argued, therefore, that establishing a corpus received as much or more concern as proceeding with follow-ups on cases already determined to be arson. Justification for this policy may be that without a corpus delicti, subsequent prosecution is untenable. While determining cause in one fire delays the follow-up investigation of prior cases, it allows subsequent clearance and prosecution.

In City 24, roughly half of the cases turned over to the unit were either totally ignored or received only a "once over lightly" preliminary investigation.

Because all City 24's investigators are fully certified police officers, they are free to complete all subsequent investigative steps. Indeed, the unit operates as a special law enforcement unit.

How much the unit considers itself a fully-qualified law enforcement unit is suggested by the policies adopted in arson homicide cases. In all other cities visited, homicide arson cases resulted in the arson unit yielding primary investigative responsibility to the homicide squad. This is not so in City 24. By written policy, if the homicide precedes the arson, the homicide unit takes charge and the arson unit assists by determining cause and cooperating as needed. If the cause of death is the fire or if death is caused as a result of the fire, the arson unit assumes the lead role and the homicide unit is tasked to cooperate and assist. No other unit studied had acquired this degree of responsibility. While possibly no more or less correct a division of responsibility than that of other cities, it shows a willingness on the unit's part to seek to discharge its responsibilities to the fullest.

Because of the range of speciality services that the unit performs for itself, the phrase "full service unit" could be borrowed from the banking industry to describe the unit's capability.

Special capabilities include:

- . polygraph
- . intelligence section (developing informants, conducting paper-chases for fraud cases)
- . photographic lab
- . fingerprint unit
- . identikit capability.

If search warrants are needed, they are secured through the District Attorney's office.

Record searches would typically include criminal history checks through in-house tie-ins to state and national criminal record clearinghouses.

Juvenile Offense Handling.

If a juvenile suspect is identified, the police juvenile division may take over the case. According to investigators, whether this option is exercised depends on how much time the investigators have already put into the case and whether or not the complexity of the case warrants special arson unit handling. If investigators have little or no investment in the case or the offense is relatively minor, it is more likely that they will "blow off" the case by turning it over to juvenile detectives.

Police Patrol Involvement.

Police patrol units are not reassigned cases of a minor nature. It is believed that this is, in part, due to the fact that the police department plays no role in other arson investigations.

If an arrest is made, adult suspects and the accompanying paperwork are processed through the police department's homicide unit where the suspect is photographed and fingerprinted and then transported to detention.

Fire Investigative Workload.

As shown below, data provided by the arson unit for the year 1975 through 1979 builds an interesting picture of the parallel growth of both fire losses as a whole and arson. Essentially, the number of structure fires has remained the same. The number of vehicle fires appears to be increasing. In both categories, the percentage of fires declared to be arson has grown from roughly one-fifth to one-third. The percentage of losses attributed to arson has remained constant at roughly a quarter of the entire fire loss. Thus, it appears that more small arsons are being detected. The total fire loss has grown enormously, exceeding any possible explanatory power of inflation or city growth - it has more than doubled in three years.

	1975	1976	1977	1978	1979
Total Structure Fires	N/A	N/A	4348	4689	4484
Total Vehicle Fires	N/A	N/A	3573	4073	N/A
Total Fire Loss	N/A	N/A	41.92M	73.32M	92.84M
Total Incendiary Loss	3.73M	8.15M	10.31M	17.06M	22.4M
Percentage \$ Loss Attributed to Arson	N/A	N/A	25%	24%	24%
Percentage Number of Fires Attributed to Arson	N/A	N/A	21%	24%	31%

Over the 1975-1979 period, the number of investigations has grown some 60%, while the number of investigators has gone up only 20%. It is important to note that if one assumes that 60 investigators of the 65 personnel conducted investigations, this represents a workload of some 33 cases per year. If one assumes a lower number of investigators actually available in 1979, say 50, this represents an annual case load of 41 cases per year. Compared to other arson units, this can be considered a light workload. If one considers only arson cases and takes the highest number of cases estimated in any report from the department (1,413), and assumes 50 investigators, then the mean number of cases worked per year per investigator is 28. This is an abnormally light case load compared to arson investigations in other sites studied, and also would be light compared to detectives handling any other type of felony. One major factor in this seemingly low productivity level is that the investigators are grouped together in two-man teams.

ARSON BUREAU WORKLOAD INDICATORS

Workload Indicators	1975	1976	1977	1978	1979
Total Number of Investigations	1269	1303	1426	1697	2027
Total Number of Criminal Offenses	912	973	1137	1398	1590
% of Investigations Crime Established	72%	75%	80%	82%	78%
Total Number of Cases Arson	779	758	923-979	1161-?	1352
% of Investigations Determined To Be Arson	61%	58%	65-69%	68%	67%

Investigative Outcomes.

Reported clearances reached a peak in 1976 of 374, or 38% of all criminal offenses logged in by the arson unit. The following year, case clearances were down to 325, or 33%. By 1979, following two successive years of decline, clearances were down to 273, or 20% of the offenses that year. It is important to break these figures down further to see whether clearances fell across the board or in one or two sub-categories. In some cities, records are so minimal that further breakdowns are not readily available. In City 24, these data have been maintained and reported for several years. Because of this, we can see that the main drop in clearances is due to a drop in the number of juveniles found to set fires, but counselled and released to parents. In 1976, 171 juveniles were handled in this manner. In 1979, juveniles counselled and released to parents dropped to 61. Over the same four-year period, both the number of adults arrested and number of juveniles referred to probation remained relatively constant. (No satisfactory explanation(s) for this dramatic drop in 1979 was ever determined). Indeed, in 1979, 198 more adults were arrested as were arrested in the bumper year of 1976.

In terms of this figure, the percentage of dollars lost to arson that were covered by clearances, rose from a low in 1977 of 10 cents of every dollar to 14.8 cents and, in 1979, 24 cents out of every dollar. Despite this heartening and steady improvement, this percentage of dollar losses is far below the 38 cents out of every dollar lost to arson estimated in 1976.

Juvenile clearance and referral to probation appear to be trending downward. In 1979, the number of juveniles referred to probation was down from the high in 1976 of 66 to a low of 46.

When clearances are viewed against workload, it appears that there is an association between a lighter workload and a higher percentage of

clearances. The reasons for this relationship may lie deeper than the obvious fact that carrying a lighter caseload would imply more time available per investigation. Among other contributing factors mentioned by investigators as bearing on the clearance rate are the number of new and relatively inexperienced investigators, and lower unit morale and motivation.

	1975	1976	1977	1978	1979
Cases Cleared (includes unfounded)	324	374	325	299	273
% Cleared of Offenses (includes unfounded)	35.5%	38.4%	33.2%	21.3%	20.2%
Adult Charges Filed	105	198	191	172	198
% Clearances Adult	32.4%	52.9%	58.7%	57.7%	72.5%
Juveniles Referred to Probation	66	66	52	53	46
Juveniles Released to Parents	153	171	107	156	61
Total Arrests	324	435	350	381	30

City 33:

Standard practice is for two or more investigators to conduct both initial and follow-up investigations. Routinely, more than a single investigator will work a case. The unit's policy is to maintain the initial investigator or the investigator most deeply involved on the case. When required, an investigator's caseload may be reduced by reassigning less important cases to permit the investigator to concentrate on a priority investigation.

If witnesses or suspects are cooperative, they may be interviewed on-scene. However, if they are uncooperative or when more information is sought, the investigator, as the fire chief's agent under state statute, can compel the witness to appear to testify under oath. This "Fire Chief's Hearing," properly exploited, can save investigators the time taken normally to "run down" and interview a witness.

Investigators make use of structured local government information sources (property records, warrants, etc.). Some investigators have also received training from the Internal Revenue Service in conducting "paper chases."

For securing search warrants, conducting line ups, and obtaining intelligence data, fire investigators tend to turn to the police to take lead roles. While investigators are authorized to make arrests, they typically rely on police patrol assistance.

Investigator training in law enforcement skills ranged from a reported 56 to 280 hours, with a mean of 135 hours. Only 80 formal out-of-department training hours were claimed by a unit member, the chief investigator.

Investigators indicated that they frequently review dispatch tapes. Other cities reported this to be a rare practice.

A review of the 120 cases in the sample showed that the following problems existed:

- . follow-up documentation missing in part or in whole.
- . investigations were not followed up the next day. Follow-up investigations were opened as much as five days following the initial request for the investigation.
- . workable leads were not followed up.

Use of Uniformed Patrol Personnel in Follow-Up Investigations.

City 33 does use patrol personnel to make arrests and to pursue the more routine and trivial incidents (such as those involving juveniles). While using patrol forces may be a controversial practice, it is one that seems worthy of serious consideration, especially by arson units that are so understaffed that they cannot pursue serious cases with workable leads because they are busy clearing minor arson cases that have suspects.

Physical Evidence Testing Difficulties.

City 33 was the only site studied that reported significant deficiencies in laboratory capability that compromised case development. Evidence is submitted to three different labs for testing for the presence of accelerants:

- . University Chemistry Lab (20 times per year - important cases)
- . County Forensic Lab (300 times per year)
- . Bureau of Alcohol, Tobacco (10 - 12 times per year for Molotov cocktails and other explosive devices)

The head of the arson unit estimates that currently 35% of all samples are being processed by the county forensic lab with procedures and techniques that do not offer the best possibility of validly assessing the presence or absence of accelerants. The District Attorney's Office reported that in 1980, roughly 50% of the samples submitted for evidence testing were returned with negative findings. One episode illustrated the problem that the new county forensic lab had during its start-up:

The arson unit had submitted one sample for testing in a vinyl bag sealed inside an evidence can. Although the bag that the sample was in was clearly marked as having a sealed sample inside, the evidence laboratory technician missed or misunderstood the instructions and went on to sample only the air inside the evidence can.

A technical controversy over the best way to analyze the presence of hydrocarbons (the solvent wash technique vs. headspace sampling) has been a serious problem in City 33. The controversy began when the FIU was forced to restrict their reliance on the services of a consulting Ph.D. chemist at a nearby university that had been reliably testing their accelerant samples for years. As a part of the agreements negotiated while forging together a county-wide arson task force, the FIU agreed to use the county forensic laboratory. After the forensic lab was designated as the lead analytical agency, a number of samples were sent in that the investigators had no doubt would come back positive. Instead, these samples came back negative. The investigators believed it was due to either inexperienced technicians, inferior technique, or both. As a result:

- . Investigators felt that cases were jeopardized. Investigator morale suffered accordingly.
- . The controversy that developed about the relative merits of both labs made front page news.
- . At the time of our on-site visit, the controversy had reached an uneasy truce; yet the chief investigator believed that at one point, he might have to withdraw from participation in the task force in order to insure that his unit's investigations would not be unnecessarily compromised by inferior laboratory analyses.

The reported consensus among investigators is that the county forensic lab is now generally competent, but is not necessarily well-prepared to extract the maximum evidentiary nature out of the materials supplied.

Documentation.

If the fire is incendiary, a full report (a "Fire Investigator's Report"), is supposed to be prepared. If a case goes to court or if the fire is a special interest fire, a narrative summary is to be prepared (this, since 1980). Formal narrative reports are to follow the suggested format developed by the State Fire Marshal's office. The State Fire Marshal's recommended prosecution report seems to be soundly structured and complete. Our examination of the record files showed that the written reports were frequently incomplete or missing.

Several aspects of the FIU's documentation appeared exemplary: each case folder had a rubber-stamped form on the outside by which to log important case status information. Also, the simplified one page report has merit, especially if augmented by additional information.

City 33's case documentation standards posed significant impediments to performance review and case management. The contents of investigative folders ranged from reasonably complete and organized to missing basic documents and, in some cases, the contents were completely missing. Cause and origin was not sufficiently detailed to permit review of the completeness of the investigation, the steps taken, or the procedures used to positively eliminate all other causes with the exception of the one determined. The filing system is not well-organized or properly secured. Case files dealing with homicides and fire fatalities, for example, seemed to have been systematically culled and sensitive photos removed. As there was no security control of keys to the unit and the case files were not locked, lack of security invited many compromises.

The Chief Investigator's main management tool is a daily log. This log has columns for date, location, whether or not an investigator responded, initials of the investigator assigned, time and date, type property, loss, cause, fire demand zone, census tract, disposition, 902 revision or not. There is no cross-reference between the daily log and the fire incident report files, but a file of all 902's is sequentially maintained. The Chief Investigator wryly noted that each year, he ends up adding new columns to the log. For instance, in 1980 he added columns to record the fire demand zone and census tract number so that the unit could track incidents on a "push pin" map.

The lieutenant assigned to the unit completes and forwards UCR data to the police department's records unit. The Chief Investigator was wholly unfamiliar with the guidelines for completing the UCR Report.

Equipment Issues.

The department's administrative office prepared a justification for a \$15,000 arson unit van to improve the efficiency of investigation and storage of equipment. The former chief turned down the proposal as an unnecessary item.

UCR Reporting:

From the UCR reports, the following arson characteristics emerged:

21% of the structural fires was set in vacant structures
90% of the estimated losses involved structural properties
11% of all structural arson fires was cleared.

Preliminary Analysis of Arson Incident Rates.

Arrest Data and Clearances:

When maintaining arrest data, the FIU is one of the better fire units; it maintained statistics by type of charge and disposition for both adult and juvenile offenders long before the UCR requirement. A review of data for past arrests shows a high point was reached in 1976. A review of arrest data since 1976 disclosed that the decline in the number of arrests may be traced to personnel changes. Over a relatively short period, three experienced investigators left the unit (in 1977 only one investigator was left with 120 months of experience). Indeed, a simple association of average man years of experience to the arrest data shows a correlation between the average man years of experience to the number of arrests.

	1976	1977	19788	1979 ⁽¹⁾	1980 ⁽²⁾
Number of Arrests	106	82	55	72	64
Average Man Months Of Experience Per Investigator	60	61	32	41	38
% Of Non-Accidental Fires Ending in Arrest	25.1	18.1	13.4	12.7	N/A

(1) City 33's UCR report listed 60 cleared by arrest + exceptional clearances, of which 26 were juveniles

(2) City 33's UCR report listed 48 cleared by arrest + exceptional clearances, of which 26 were juveniles

Fire Investigation Workload Indicators

	1976	1977	1978	1979	1980	Remarks
# Of Fires	4,800	4,772	4,242	4,508	4,039	Downward trend with low point in 1980
# Of Fires Investigated	503	488	453	615	518	
# Of Non-Accidental Fires (Incendiary & Suspicious & Undetermined)	391	399	385	546	411	Up significantly in 1979
% Of Non-Accidental Fires	8.8	9.5	9.6	12.4	10.2	Upward trend with jump in 1979
# Of Fires Investigated	503	488	453	615 ⁽¹⁾	518 ⁽⁴⁾	Lowest in 1978. Up significantly in 1979
% Of Fires Investigated	10.4	10.2	10.7	13.6	12.8	Relatively Constant until 1979
# Of Investigated Fires Found Undetermined	0	3	3	12	14	Low number of undetermined due to careful updating of fire cause reports
# Of Fires Investigated Deemed Non-Accidental	423	454	408	563 ⁽²⁾	343 ⁽⁵⁾	Up in 1979.
# Of Fires Investigated Deemed To Be Incendiary	413	441	398	546 ⁽²⁾	411 ⁽⁵⁾	

(*) 1979 UCR report lists 613 complaints, 539⁽²⁾ arsons established

1980 UCR report lists 512⁽⁴⁾ complaints, 426⁽⁵⁾ crimes established

City 57:

Follow-Up Investigative Activity.

Detectives decline that they follow-up on all cases referred to them. Follow-up activity has included record searches, financial data reviews, and public records.

Documentary Evidence Collection.

Since 1978, the Chief Investigator has made it a policy to have a title search performed if the loss is more than \$500.

Homicide.

The Homicide Squad takes charge of arson-related homicides.

Vehicle Fires.

Vehicle fire investigations often did not get off the ground because investigators concluded that following extinguishment, fire personnel returned to quarters without posting guards. In these circumstances, investigators felt that the follow-up investigation was weakened.

This interpretation points to the clear need to legally determine what can and cannot be safely regarded as securing the scene. From this need flows the further need to compile a discussion of the various priorities employed in securing such property, police guards, towing to locked facilities, etc.

Legal Aspects.

Investigators only consult prosecutors on sticky aspects of major cases.

Michigan vs. Tyler.

Investigators have full knowledge of the Tyler decision's import and conduct follow-up investigations to conform with it.

Use of Uniformed Patrol Personnel.

Only since 1979 have the patrol officers been supplied with a guideline for cooperating with the on-scene investigation. Lack of training of police patrol officers in the fine points of arson crime investigation was seen as a deficiency by the members of the arson unit.

In addition to a lack of supervision, coordination, and communication between the Fire Marshal and the Chief Arson Investigator, there appears to be a relatively low priority given to arson investigation by the Police Department. This is apparent even though a "full-time" police officer is assigned to the Arson Squad; his duties also include all "general" type petty crimes which occur on a day-by-day basis and require further

investigation. This results in the Fire Department Investigator either accompanying him or waiting for his completion of other minor cases before work may continue on an arson case.

Even though both partners in the team are qualified to perform the responsibilities of this position, it should be recognized that with such limited time (frequently interrupted), only a certain number of investigations can result in arrest and conviction. Therefore, if arson control is seen as a priority, it would be important to train others to provide back-up when necessary, or preferably assign a truly "full-time" police officer, without additional duties, to the Arson Squad.

Improvements in investigative practices during the period include:

- joint team (July, 1976)
- investigating a higher percentage of calls
- increased fire fighter awareness of probing more to assist cause determination
- increased prosecutions
- increased public awareness through increased media coverage.

Most significant difficulties encountered include:

- lack of interest at the top management levels
- over-emphasis on fire suppression at the expense of fire investigation as seen in the shortage of full-time assigned investigators.

Senior investigator believes that all large-loss fires should be investigated.

Demand And Workload Indicators

Measure	1976	1977	1978	1979	1980	Trend
Building Fires	707	702	726	648	596	Down Down Down
Non-Structural	894	950	917	767	691	
Total	1,601	1,652	1,643	1,415	1,257	
Total \$ Loss	1,607,650	2,840,930	2,826,595	3,105,520	3,078,903	Up Up
Per Capita Loss	12.42	14.90	14.90	19.13	19.00	
<u>Build. Fire Causes:</u>						
Arson	349	155	169	139		Down 1/2 Down 20%
Juvenile	101	100	84	80		
Undetermined	78	71	65	69		
Careless Smoking	89	75	81	83		
Electrical	71	41	90	63		
Other	219	296	318	297		
Fires Investigated		601	550	370		Down 1/2
% Fires Investigated		36	34	26		Down 10%
Arson Complaints 63(4 M)		321	285	205	243	Down
% Complaints To Investigations		53%	52%	55%		
No. Complaints		280	280			
Threats To Burn	7					
Criminal Complaint Unfounded				30		
Juvenile Arrests	15	71	N/A	2	9	
Juvenile Convictions	N/A	N/A	N/A	N/A	N/A	
Adult Arrests	12	57	N/A	39	35	
Adult Convictions	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	
Total Arrests	27	128	56	94	44	

City 60:

Follow-Up Investigation.

When the suspect is identified on the scene or confesses, as happened in two-thirds of the sample cases ending in arrest, the follow-up investigation becomes a procedural routine. Since the arson investigators do not possess police powers, once they obtain an arrest or search warrant from a magistrate, court clerk, or judge (by defining probable cause facts), the papers are served by a police officer. Arrest and transportation are also handled by the Police Department.

However, the majority of cases investigated are not solved at the scene. These cases require hard investigative effort to establish the facts of the crime and identify a suspect. It is in these cases that the skills of the investigator and the soundness of the arson control system are tested.

Special Investigative Policies.

In multiple crimes, overall handling of cases depends on the types of crimes involved. In homicide cases, the arson unit determines the cause of fire and the Medical Examiner examines the victim to determine cause of death. [One case in the sample involved a fatality; as the arson caused the death (rather than arson as a crime-concealing device), the arson unit investigated the fire.]

In cases in which the Police Department initiates the investigation (for example, when an unexploded Molotov Cocktail is found or a stolen, stripped, and burned-out car is found), the arson unit will assist police investigators as requested and will provide supplementary reports to cover the investigative actions taken to support the case. In a case involving vandalism of a car by fire and other means (paint, metal tools, etc.), the case apparently was "lost between the cracks": neither the police nor fire investigators took responsibility.

In the sample of 120 cases, three cases of arson-for-profit were found. In one, the proprietor of a drive-in restaurant escaped initial detection. The case was reopened when an informant agreed to testify. After being released on bond, the defendant fled the country. In another case, a motorcycle sales outlet was torched with a \$23,000 loss, but no case was developed against the owners. A car that was set on fire by a friend to enable the owner to buy a better car resulted in the conviction of two individuals (one adult, one juvenile). In each case, the investigative staff searched title, deeds, and property transfer of ownership documentation, obtained financial history data on the owner and suspects, checked criminal history records, and worked with insurance underwriters.

While each of these cases had potential investigation flaws, the arson unit, nevertheless, managed to clear two of the four cases by arrest or by exception, and obtained convictions in one case.

Evidence handling in the 20 cases which resulted in arrests showed that arrests most often occurred on-scene as a result of testimonial evidence by a witness/informant who named the suspect. Although physical evidence was routinely collected, it was not the major factor in producing an arrest.

A newly-appointed police chief has expressed the feeling that with his understanding of the policies and procedures practiced in the past, he is dissatisfied with the administrative and operational performance. Tighter administrative and operational controls need to be placed on the investigative unit; and if such controls are not implemented or do not result in improved investigative performance, the police chief indicated that he would seek to recover responsibility for arson investigation.

City 70:

City 70's follow-up activity was chiefly conducted by a five-man arson unit in the police department. The initiative to call the unit into a fire investigation was "except for racial incidents, determination was made by the fire investigation unit." Fire investigators typically requested a member of the arson unit when an eye-witness was present at the fire scene, the occupant was considered a suspect, or any time an industrial/large commercial fire occurred. According to the nature of the case and competing priorities, fire investigators might continue to take part in follow-up investigative efforts. The regular reassignment of minor arson cases to police patrol forces (see below) also contributed to the follow-up investigative resources.

While City 70 practiced standard police investigative techniques in conducting follow-up investigations, what distinguished their practice was the consistency that came from tight administrative controls.

NOTE: THIS SECTION OF THE REPORTED DELETED TO PRESERVE THE CONFIDENTIALITY OF THE CITY.

Fires determined to be incendiary are documented in the Arson Log Book with the following information:

- . date received
- . location of the fire
- . time fire occurred
- . central complaint number
- . UCR Code for classification of fire structure
- . estimated fire damage loss
- . number of alarms
- . district designation when fire occurred
- . supplementary report due date
- . name of the police investigator assigned to the case
- . name of the fire investigator

5.5-30

City 44:

City 44 encountered classic fire police issues that impede closer interagency working relationships. In general, misunderstandings grew from a combination of factors:

- . an historical interagency rivalry that can be likened to the "Army-Navy" interservice rivalry.
- . the difference over what role the fire investigator should play (if any) in an arson case following investigation.
- . probable cause for arrest. Fire service personnel may not have fully appreciated the reasons why arrest in some cases were not made on the spot. Fire personnel may not have comprehended the necessity of establishing all elements of a crime and consequently argued prematurely for arrests to be made.
- . from the fire service perspective too many cases with good leads were dead-ending for no known reason.
- . failure to meet regularly and resolve these issues exacerbated the boundary problems.

Matters came to a head in 1979 following repeated disagreements between fire and police personnel at the operational level. Discussions at the senior staff level resulted in the replacement of the assigned detective. As a result of these discussions, the police department agreed to increase arson crime staffing to two investigators.

The two police officers were to remain under the supervision of the detective division while assigned tactically to the fire department. Conditions for the detectives to be assigned to the four-man unit included that they were:

- . not to be supervised in their investigative performance by fire department officers or the fire administration
- . expected to attend police roll calls
- . to prepare and submit reports through police channels in accordance with police rules.

Police Patrol Involvement.

Police patrol personnel play a limited role in follow-up investigation compared to on-scene arrest, interview, and documentation. For example, of the ten arrests made by patrol personnel, only one occurred during the follow-up phase.

Standard Investigative Practices.

Between 1977 and 1979, one detective was usually assigned all arson cases. He, alone, determined to what degree the case was worked. This practice essentially continues today with no effective monitoring of cases

5.5-20

by police supervisory personnel. The two detectives presently assigned to arson have titular supervision by a police captain; they utilize police reports and reporting procedures and submit their reports through normal detective division channels. The detectives attend the two daily roll calls, and police in-service training. The detectives are allowed to sign up for overtime to investigate larcenies and like crimes that can be rapidly closed out.

The two detectives assigned to arson were assigned because of expressed interest in the field and because they volunteered.

From the case records, it appears that unless the fire was serious, the detectives were not notified while the fire was in progress. Therefore, they may have seldom visited the scene until hours or days after the event, if at all. This practice builds in a considerable lagtime until the detective assigned to the case actually begins to work the case. In part, this may have been due to the fact that arson investigation during this period was typically handled by a single detective. The detective had no special arson investigation standard procedures to follow; each detective set his own standards.

Case Documentation.

Investigations are documented on standard police complaint forms and supplements. Miscellaneous report forms are typically used for minor offenses. Overall, the investigative efforts reflected in the reports characterize themselves as superficial and perfunctory - they suggest a lack of follow-up, especially in the basics of neighborhood canvass and other cold-lead activities. This situation was confirmed by independent sources: "a thorough check of a neighborhood is seldom, if ever, accomplished." Other investigative leads, such as witness follow-up and property owner checks, do not appear to have been routinely explored. It may be that investigators carried out these tasks in some instances, but that the reports simply omitted mentioning these activities.

The frequency with which cases fell through the crack suggests that fundamental weaknesses continued throughout the three-year period. To cite one example, the owner gave a full description (including license plate numbers of suspects) and complained that this fire was one of a series of garbage can fires. Apparently, no action was taken. A footnote to this incident was that five separate fires occurred 17 days later, one block away on the same street. If an arson information management system had been in effect, the linkage with other fires might have been spotted. Based on this information, greater effort might have been extended on this case.

Misuse of UCR Terminology and Other Reporting Practices.

An incorrect usage of "exceptional clearance" frequently cropped up in the sample. The clearance justifications tend to be more detailed than the rest of the investigation reports. A detective in one case evidently understood the definition and distinction between unbounding a case,

clearing it exceptionally, or clearing it by arrest. But, despite this apparent understanding of the term and familiarity with the procedure, the detective repeatedly sought to clear cases in a manner inconsistent with UCR procedure.

It is interesting that the detective's supervisor did not challenge these elaborately-justified, but incorrect, clearance requests. The city's supplements have two approval blocks to signify agreement with the case disposition; two senior police officers are to review and approve each report to see that it is properly handled and recorded as to clearance. One can only conclude that they approved of variant definitions, did not review the reports carefully enough, or did not fully understand UCR standard definitions and usage.

One example of the misuse of exceptional clearance occurred when one such clearance was requested and granted, even though an outstanding warrant was on file and the detective stated in the report that he was unable to locate the suspect.

During follow-up interviews with the detective detailed to investigate arson during 1977-1979, we learned that he had several misconceptions of UCR procedures, particularly those involving exceptional clearance. He could not adequately define exceptional clearance. His rule of thumb seemed to be that if considerable investigative effort had been expended, this would be a basis for considering the case exceptionally cleared, regardless of the outcome. In addition, it was his opinion that if a warrant had been issued, this was, in itself, sufficient for exceptional clearance. This is tantamount to counting a baseball player left on second as a run batted in. While it is possible, it is not likely that the failure to maintain the distinction was innocent.

One of the two detectives assigned during 1980 appeared reasonably well-versed in UCR clearance procedures, understanding the definitions and the application of such terms as "exceptional clearance" and "unbounding" a case.

Analysis of Arson Incident and Arrest Rates.

Data from the 1979 edition of "Crime in the U.S." suggest that this city reported an extremely low number of arsons compared to the national average for cities its size. For 1979, City 44 reported only 40 arsons for a rate of 18 per 100,000. This compares to 55 reported arsons per 100,000 population for the nation as a whole. It is interesting to note that City 44's crime index rates for all other Part I crimes almost exactly matched the national averages for cities of over 250,000 population. In other words, it's a medium-sized city with large-city crime rates.

A 1979 Fire Prevention report gives another impression of arson rates in City 44. In all likelihood, City 44 seriously under-reported the number of arsons in 1979, and, in fact, has an arson rate roughly five times the reported figure and twice the national average. During the 90-day period following the formation of the arson unit (September through December 1979), some 116 investigations were conducted; and, from these investigations, 50 cases of arson were detected.

Any of the following factors could independently or collectively account for the discrepancies in the arson rates:

- failure to distinguish between unfounded clearances and criminal clearances
- changes in definition of arson, incendiary, suspicious, etc.
- changes in detection skills or the skills of investigators, and the number of personnel assigned
- under-reporting of incidents to UCR.

Arrest Data.

Neither fire nor police departments maintained data on workload. Best available workload estimates are:

Year	Number of Investigations
1977	314
1978	358
1979	396
1980	450

A preliminary review of the cases ending in arrest indicates that a high percentage of all cases in City 44 that ended in arrest are "gimmies" - juveniles, mental patients, and domestic spite cases. Economically-motivated arson may be extraordinarily rare, may go undetected, or may not be pursued to the point to yield arrest.

Utilization Of Physical Evidence In Cases Ending In Arrest/Physical Evidence Prosecution Data.

The mix of cases that are typically solved in City 44 and most other cities requires little evidence to obtain an appropriate disposition. In other words, the impression that some arson texts leave one with -- convictions require an airtight development and presentation of evidence during trial -- does not mirror the impression gained from our sample case files. These cases seem to hardly touch upon the issue of the establishment of the body of the crime. Instead, the corpus seems to almost to be taken for granted, as if the circumstances spoke for themselves. Undoubtedly, this impression is influenced by the fact that most of the cases brought before a judge are, by their nature, strong ones, typically involving a confession, eyewitness, and direct evidence linking the defendant to the crime. Hence, the fact of the crime may almost be stipulated by the defense.

Arson Arrests

Year	Race			Sex		Age		Total
	Black	White	Other	Male	Female	Adult	Juvenile	
1976	31	19	0	45	5	24	26	50
1977	35	13	0	42	6	25	23	48
1978	15	12	0	24	3	15	12	27
1979	8	14	0	15	7	14	8	22
1980	12	8	0	16	4	13	7	20
Total	101	66	0	142	25	91	76	167

The significance of this is twofold. First, investigators may get lulled into the false sense that thorough, painstaking case development is not required as a matter of routine. Second, it raises the possibility that despite the common wisdom that arson conviction rates are so low because prosecutors are unwilling or unable to prosecute them, it may be that arson cases fare as well as most of the other property type felonies in court. The difference may be that a lower percentage of cases that end in arrest/exceptional clearance are eligible for prosecution. Arson may be in the same ball park as larceny in terms of clearances, but this may be due to the high percentage of juveniles and mentally disturbed in the arrest population compared to other crimes. In other words, a study of arson adjudication might turn up patterns that show juveniles and mental patients constitute a large block of all arrests and, therefore, build in a low conviction rate or sentencing rate.

Training.

The arson fire investigators attended the USFA's Basic Arson Investigation course. In addition, fire personnel attended a monthly meeting of a regional arson investigation association and a state chapter meeting of the IAAI. Arson investigators receive approximately 10 hours of in-service training per year.

In view of financial constraints, the Fire Marshal doubts that training will be improved in the immediate future.

The arson investigators receive no formal training on report writing and procedures within the Fire Bureau. There are no S.O.P.'s for arson investigation; however, the fire marshal states that he refers the fire inspectors to standard texts on arson as training guides.

Police investigators receive training at the Police Department. The courses are not intended to emphasize the types of problems encountered in arson investigation. Cross-training of fire personnel in police sciences (which was to have been a part of the new joint team approach) has simply not taken place.

CONTINUED

2 OF 3

- type of offense being investigated
- property or structure description
- investigative returns indicating whether the case was cleared by arrest, unfounded, cleared by exception, cleared by other, or suspended.

Finally, under the remarks column are documented names of arrested person(s) wanted by warrant, or other brief remarks as to the investigative findings.

After documentation of the incendiary fires, one copy of the report is given to an investigator as an assignment. Attached to the report is an index card which has to be returned to the supervisor, along with a supplement report seven days after assignment indicating the results of the investigation. A second copy of the report is filed according to crime classification (example: arson, attempted arson, malicious burning, etc.). With incendiary fires, a second index card is filed according to street location for offenses. The third index card is filed by central complaint number, in sequence, according to the month of the year.

Reports on fires of a suspicious nature, fatal fires (non-criminal), and all commercial fires are also filed under these categories, along with index cards filed according to the street location and central complaint number. Accidental cases are reviewed, but not kept on file; only the index cards are filed. An index card filed by street location indicates the cause of the fire at the top of the card.

A copy of the fire investigator's report is also given to the police investigator, along with any Crime Lab Reports regarding crime scene processing.

Arson detectives indicated three recurring problems in their labor with fire investigators. One problem not yet resolved is the use of the word "incendiary" in the classification of fires. This inexactness of the term gives no clue as to the exact charging statute in the criminal code. Since charging documents must be in accordance with the criminal code, arson detectives would prefer that intentionally set fires be identified as specific violations of the arson law. (Example: arson, attempted arson, malicious burning, open burning.) By knowing and applying the criminal code, fire investigators would insure that their documentation of the facts meet the criteria of the violation of the law. As a result, the criminal violations could be separated from incendiary fires not in violation of the criminal code.

Another difficulty commented on by detectives occurs when the cause and origin of the fire cannot be determined immediately or fully ascertained. In such cases, the fire investigator might file an office report a week later, after carefully determining that the fire was incendiary. This late decision rendered detectives at a disadvantage in follow-up investigation of the fire. The third problem encountered was when fires were determined to be incendiary by the Fire Investigator

without any proof of evidence. (Example: "fast traveling fire" was given as reason for determination.) As one detective dryly put it, "Fires without proof of evidence are difficult to prosecute."

Use of Uniform Patrol Personnel.

City 70 makes better use of police patrol personnel than any other site studied. District patrol personnel handle malicious burning incidents and automobile fires. The only apparent difficulty with this approach concerns getting paperwork from patrol officers. This seems to be a minor problem compared to the demonstrable benefit of putting arson cases into one of two categories - cases to be handled by patrol officers, or cases to be handled by detectives.

	1977	1978	1979
<u>Arsons and Attempted Arsons</u>			
Total Offenses (CID + District)	344	374	547
% Clearances	57.6	46.5	39.8
Physical Arrest	158	169	155
Clearances	162	174	218
Unfounded	33	N/A	N/A
Exceptional	3	N/A	N/A
<u>Total Investigations Arson Squad</u>			
% Physical Arrests	33	45	24
% Case Clearances	35	46.5	26
% Unfounded	9.6	N/A	7
% Exceptional Clearances	11	N/A	3
% Other (Fatalities, Suspicious)	6	N/A	6.1
% Suspended	49%	N/A	49.7
Loss	4.4	?	4.04?

Note: This information on structure fires is only for 1977 and 1978. For 1979, malicious burnings and attempted arsons were to correspond to UCR definitions, hence, the large jump in clearances.

City 70 can rightfully and proudly point to its high clearance rate for arson. In its annual report, the police arson unit analyzes both the unit's activities and the police department's performance in investigating and clearing arson crimes. As a consequence, supervisory records-keeping systems and administrative performance data can be cross-tabulated and analyzed from a number of perspectives.

With these tabulations, an administrator is able to explore different workload and performance assessments. The other arson units studied do not maintain and report data down to the level of the individual investigator with the detail and degree of accuracy shown here.

This data base also provides an opportunity to illustrate how important it is to clarify exactly what operational factors and definitions go into the term "clearance rate." Consider, for example, the following definitions of % clearance rates for arson taken from the official 1979 police department report:

- using the UCR definition of arson or attempted arsons for all classes of property known to the department, the clearance rate would be 40%
- if the UCR definition is applied to the outcomes of the arson unit's activities only, the clearance rate would be 44.4%
- if the UCR definition is applied to both the arson unit and the patrol officer's efforts, the clearance rate would be 47.8%
- if the definition of clearance rate is applied to the arson unit only, and included in the clearance rate are cases that are unfounded and other clearances, the clearance rate is 50.3%.

Depending on which facet of arson control is under consideration, each clearance rate figure might be more or less valid; and in this case, the swing between definitions is 10%.

Unless the definitions are consistently applied, comparisons can be compromised; phantom improvements or degradations in performance can be incorrectly inferred; and cross-site and overtime comparisons, treacherous at the least, may be misleading.

It is important for readers to bear this problem in mind when reviewing the basic data and the normalized data derived. Likewise, when City A's track record is compared to City B's, if the definitions and conventions are not equivalent and consistent in application, any large apparent difference may be due chiefly to where the tape measure was tightened - around the waist or the hips.

City 87:

Follow-Up Investigation.

Once evidence of arson has been found, the standard investigative practices of City 87's Police Department are supposed to be followed. Normally, investigators continue to work their own cases. At this time, the assigned police investigator may formally take an active role in the case as the expert investigator. The detective only handles criminal cases and is not involved with fire codes, inspections held at night, false alarm investigation, or the other additional responsibilities that are assigned to fire investigators.

City 87 lacks a formally-articulated mechanism to bring the detective into an arson case. In general, City 87 fire investigators continue to work their own cases. Because of delays in forwarding fire incident reports and the absence of a case management system, cases that should be assigned to the team handling more complicated cases frequently do not surface in a timely fashion.

A number of cases involving auto theft followed by arson apparently were neither followed up nor coordinated with the Police Department. According to the Arson Detective and the Senior Fire Investigator (and verified by the Chief of Investigation), the Police Department's auto theft unit handles the theft, and the arson unit handles the arson. However, they all agree that, as a practical matter, the arsons are not investigated. The attitude seems to be that the theft is the basic crime and is handled by the Police Department, and to separately investigate the arson would be redundant.

Electrical fires and arson fires mimicking electrical fires seem to pose the biggest problem in developing sound arson cases. The Chief Investigator may be especially sensitive to this problem, as the Fire Department is cooperating with the USFA on a comprehensive study of electrical fires.

Although it is not a regular feature of every report, investigators will sometimes make recommendations in their reports as to follow-up steps to take. The Chief Investigator states that he tries to allocate his follow-up investigative resources based on solvability factors. If the initial investigator assigns a high priority to the case for follow-up work, the Chief Investigator is more likely to assign another investigator to pursue the case.

Based upon his experience, the Chief Investigator states that unless a perpetrator is identified within four hours of the occurrence, only infrequently will the case later be successfully cleared. While this rule-of-thumb has a doubtful validity, it cannot and should not be taken as a justification for not following up cases with strong investigative leads, no matter how "old the trail." Cases having workable leads receive priority; the fact that the perpetrator is not identified in the first four hours does not mean that the case cannot be successfully resolved.

The Chief Investigator estimates that the unit routinely has 200 backlogged cases. Therefore, assigning cases on the basis of which ones have the most workable leads seems desirable. A new trend in criminal case procedure called "Managing Criminal Investigations" (MCI) was received with much favorable review in this regard. The Chief Investigator is unfamiliar with this system and does not use it.

An outline of a proposed case management guide was prepared by the Detective Investigator; the Chief Investigator intends to place it into effect. Problems encountered with present procedures might be reduced by clearing up present procedural misunderstandings and by clarifying investigative priority in a similar fashion.

Follow-up activities may include scheduling polygraph tests; completing background criminal and fire history checks on suspects, victims or witnesses. These activities may also include interviewing the owner and occupant and running both names through a card file system which maintains fire history by address, ownership, and persons involved. This simple, but effective, manual data retrieval system has been in use since 1945.

Since 1967, the State Fire Marshal's office has maintained a cross-index by name and ownership of property involved in a fire. Investigators commented that the Statewide fire reporting system provides them with a data base of names of building owners and occupants who have previous fire experience. Naturally, the quality of this data base is dependent upon the quality of the information supplied by this and other departments and is limited in terms of only tracking in-state persons. The Chief Investigator expressed confidence that every significant fire had these elements checked. If this is so, a number of report narratives did not mention that this step was taken.

An interesting feature of this state law is that, supposedly, all crimes of arson must be reported to both law enforcement and the District Attorney. The District Attorney is charged with the responsibility for assisting in investigation, as well as prosecution. The law's intent may be sound, but practically speaking, it is ignored. The Chief Investigator, the Detective Investigator, and the ADA were not familiar with this law, and, therefore, did not follow it.

Use of Uniformed Patrol Personnel.

If a suspect is on-scene or believed to be in the area, fire officers or investigators will call for police back-up. It appears that the arson unit does not use the patrol resources to handle minor arson cases, to serve warrants, or to make arrests for the arson unit. According to the Police and Fire Department officials, this could be accomplished if the patrol receives additional arson training, but is not being considered at this time.

Different investigators emphasize different aspects of their relationship with patrol officers, but all commented on the high degree of cooperation extended by nearly all of the patrol officers (one investigator

estimated that 80 to 90% were "good guys"). Of course, the degree of cooperation varies by officer, shift, and district of the city. Forms of assistance extended included:

- . searching for suspect and suspect vehicles
- . reviewing mug shots for throw down photo identifications (a probable alternate to a line-up)
- . providing back-up and cover
- . assisting in making arrests
- . transporting suspects (fire investigator vehicles are not equipped with cages)
- . assisting in executing arrest and search warrants
- . running records checks on persons interviewed or identified at the fire scene
- . serving as a witness during interviews
- . providing supplementary police reports on occasion
- . maintaining security at a fire scene.

Investigators were especially appreciative of the additional security and street savvy of the patrol officers in their districts.

When investigators exercised the initiative, they reported that patrol officers at precinct roll calls were very helpful in responding to requests for suspects to be located based on mug shots.

Once police radios were installed in investigators' cars, they remarked at the dramatic increase in cooperation. It seems as though this hardware item tended to legitimize the role of the arson investigation in the eyes of the patrol officer.

It is interesting to note that on the one hand, the investigators perceive that they are forced to rely on the police manpower because they are so short-handed (i.e., typically during this period, investigators have had to work solo, rather than in the two-man teams they would prefer); at the same time, they remark at length upon the "hand-in-glove" level of cooperation extended by patrol officers. Rather than appearing to be a drawback, the fact that the investigators have to rely on borrowed patrol manpower may be a decided advantage. Admittedly, the increase in patrol workloads might be seen as negative, as might the handicap of having to be dependent on others (from the fire investigator's perspective). Yet, these "shortages" and drawbacks force interagency mutual interdependency and pull together system elements that might otherwise ignore each other's mutual interests.

In discussing one-man vs two-man investigative teams, the patrol officer's potential use is usually not addressed. Indeed, much of the justification for two-man teams is based on the additional capabilities that an extra hand and a pair of eyes provide. Yet, patrol officers -- properly trained, approached, and cultivated by positive feedback ("atta boys") for arrests, letters placed in personnel folders, etc.--may in some communities be one of the biggest manpower boosts an arson unit could get. While the best of all possible worlds might be the two-man investigative team assisted by an aggressive, cooperative patrol force, the realities of local government funding are likely to mean solo arson investigators assisted by overworked patrol units.

The choice for many arson units, then, will be to get along with the patrol unit or try to do without their cooperation. It may require careful cultivation; long, slow winning of trust; many meetings; and many cups of coffee, but the patrol officer probably represents the best reserve of investigative capability. Patrol units can help the most where help is most needed - from the largest elements of the fire investigator's workload to the more minor and uncomplicated uses of fire-vandalism, revenge cases, and multiple fire-setting patterns.

Arson Data And Information Systems UCR Reporting.

City 87's Police Department collects UCR data and forwards it to the State. Data was available for only one year. Reported per capita arson rates for calendar year 1979 ran 100 per 100,000. This rate was only exceeded by the reported rates for Cities 17 and 33, respectively. The clearance rate runs between 10-15% of established arsons. Overall crime rate compared to cities with populations over 250,000 is close to the norm. However, arson, assault, rape, and larceny exceed the norm, while the rates for murder, robbery, and motor vehicle theft appear to run lower than the rates for all cities in this size category. Thus, it appears that during 1979, City 87 had "normal" crime rates.

Amongst the many uncertainties about these and all other crime data is the fact that the rates are based on an estimate of population that is roughly 10% higher than the 1980 Census figures. In other words, the rates of crime per 100,000 would run some 10% higher than they do with this overestimation of population.

Workload Indicators		
Type Investigation	1977 - 1978	1978 - 1979
Arsons/Threats/Attempts	463	346
Undetermined Causes	2	5
Unfounded	177	258
Juvenile Fire-Setting Investigation	128	196
Special Investigations	503	334
Sub-Total New Investigations	1,273	1,139
Previously Pending Investigations	3,119	2,292
TOTAL	4,392	3,097

Note that special investigations consist mainly of false alarm cases, and prevention inspections consisting of crowd checks/locked exit inspections, etc. Taken together, they exceed the gross number of arson investigations.

Actual fire investigations actually rose during the period from 770 to 805.

Police Patrol and Support.

Police S.O.P.'s call for patrol officers who respond to fires to be observant; to take responsibility for traffic and crowd control; and, if possible, to establish a traffic cordon two to three blocks away from the fire. While the S.O.P. is entirely sufficient as far as it goes, it does not stress the importance of police patrol observations to successful clearances.

It may be that such an emphasis is unwarranted. It could be argued, for instance, that patrol officers need not be told the obvious: that arson requires the same skills and attitudes as does detecting other suspicious acts and persons.

It may be that while arson needs to be treated no differently, it requires special emphasis because it is a "new crime"; one that differs in several important respects from the normal patrol fare of domestic disputes, street crimes, larceny, break-ins, and the like. Accordingly, police patrol officers may need to be sensitized to the potential importance of solving arson cases and discouraging the activity.

In addition to training, two other factors may also influence the success of police patrol involvement. One possible factor in patrol involvement in arson detection is determining which agency is in charge of investigation (fire, police, joint). A second, and perhaps more important factor, regardless of the agency involvement, is how well the patrol force

is utilized in arson detection and follow-up arson investigation. There may be a correlation between whether the patrol forces operate as a team member in the arson control system (perhaps assigned responsibility for minor arsons, neighborhood-level fire setting activities, auto theft-arsons, etc.) and how well the arson control system, as a whole, functions. One modern police science approach stresses the need to better utilize patrol forces in order to solve certain categories of crime.

The patrol units were used with considerable success in City 70. In City 87, their role was limited, in the main, to the identification of witnesses, and to traffic and crowd control. One very important difference between the two cities was that in City 70, all arsons were investigated by the Police Department, then the Department would call on support from the patrol and delegate certain investigations to those units; and, in City 87, the Fire Department was responsible for arson investigation, with no direct chain of command access to use of patrol officers for follow-up investigation. The Chief of Arson, the detective assigned, and others interviewed believed that, with training, the units could be used for auto and other minor arsons.

Follow-up investigative reports are as well-documented, reflect as much digging in terms of follow-up interviews, and appear to be performed with as much diligence and success as any encountered in any of the cities studied. The unit claims some 9,336 interviews and interrogations were performed in Fiscal Year 78-79. Many of these interviews concerned non-fire/arson investigations (i.e., false alarms), but a detailed breakout was not maintained.

The "Criminal Report" format that is used to detail the initial report is borrowed from the Police Department. A "Special Reports" format (almost identical) was also borrowed from and adapted to fire investigative needs. Used primarily as a supplement, it can be used to close-out juvenile cases of playing with matches that end in parental referrals. With a slight modification to two lines of the report, the same general format is used to close-out fires that were investigated and deemed accidental.

While clerical bottlenecks have to be considered the normal state of affairs in an office setting, the fact that a formal priority case typing routine has not been developed may unnecessarily delay review of the most important cases.

Cases ending in arrest have Custody Reports initiated.

On occasion, investigators rely on handwritten reports and their personal notes until a case is resolved or it reaches an important juncture point. At this time, a full report is dictated. One of the two secretaries transcribes the report 1 to 2 days later. The investigator reviews and verifies the report, then initials it. The following afternoon, it typically reaches the Chief Investigator's desk. What this means is that it is not uncommon for an investigator to review a case for the first time six weeks after it began.

Delays in completing investigative reports appeared to be a considerable problem that affected case outcomes and discipline. In resolving this problem, the chief investigator has had considerable difficulty in getting backing from his superiors. This is part of the problem, aggravated by the fact that this unit has failed to develop a management system which clearly outlines responsibilities and details case management.

Little concern was expressed for the delay in forwarding or completing case information. When questioned about the importance of such data in establishing a comprehensive arson investigation program, they immediately became defensive and offered many reasons and excuses for why this information could not be completed by the end of each shift. Reasons for not completing this data ranged from an excessive workload to having to do their own follow-ups in order to maintain necessary information which may be lost through a breakdown in communications. While there are inherent problems whenever case information is passed from one source to another, these problems may be overcome through training, procedures, and sound documentation. An excessive workload does not seem to be the problem. Thus, problems with perception exist at both levels.

While most case documentation is above average in terms of thoroughness, the major problem would be in the area of follow-up to insure timely execution of a complete and thorough investigation of a fire scene. The time lapse between the fire's occurrence and the review of case data by the unit manager would virtually destroy any legal follow-up for prosecution purposes in a criminal case.

END