DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATIONStatistical Analysis of reports of fires attended by Fire Brigades in
the United Kingdom during 1953

Reports on form K.433 of fires attended by the Fire Brigades in the United Kingdom during 1953 have been analysed and the following ten statistical tables have been prepared for England and Wales, for Scotland and for Northern Ireland: the tables are set out in Appendices I, II and III respectively.

No.	TABLE
1	Method of calling Fire Brigades to fires.
2	Fires classified according to hazard in which fire started.
3	Supposed cause of fires.
4A	Supposed cause of fires in buildings in relation to hazard in which fire started.
4B	Supposed cause of fires other than those in buildings in relation to hazard in which fire started.
5	Material first ignited in fires.
6	Method of extinction of fires.
7	Behaviour of sprinkler systems at fires.
8	Attendance of special appliances at fires.
9	Persons rescued or escaped by emergency means from fires.
10	Nature of injuries of casualties in fires.

Zero percentages and percentages less than 0.05% are indicated by a dash (-) in the tables.

All reports were analysed to prepare Tables 9 and 10. Because of shortage of staff, a random one-in-five sample of reports was analysed for Tables 1, 2, 3, 4A, 4B, 5, 6, 7 and 8, the results of analysis of this sample were multiplied by five to obtain the figures given in the tables (except for Table 7). The method of selecting the sample and the accuracy of the estimated yearly totals and of the percentages of different types of occurrence are discussed in Appendix IV.

G. G. AUBER

J. E. L. HINTON

D. W. MILLAR

APPENDIX I

STATISTICAL TABLES FOR FIRE BRIGADES IN ENGLAND AND WALES, 1953

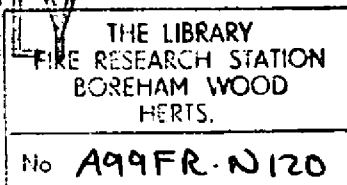
Table 1

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from England and Wales, 1953 -

(Frequencies obtained by multiplying results of analysis of a one in five sample of reports by five)

Method of Calling	County Fire Brigades																														
	Anglesey	Bedfordshire	Berkshire and Reading C.B.	Breconshire and Radnorshire	Buckinghamshire	Caernarvonshire	Cambridgeshire	Cardiganshire and Carmarthenshire	Cheshire	Cornwall	Cumberland	Denbighshire and Montgomeryshire	Derbyshire	Devon	Dorset	Durham	Ely, Isle of	Essex	Flintshire	Glamorgan	Gloucestershire	Hampshire	Herefordshire	Hertfordshire	Huntingdonshire	Kent and Canterbury	Lancashire	Leicestershire and Rutland	Lincolnshire, Holland	Lincolnshire, Kesteven	Lincolnshire, Lindsey
By Special Fire Service methods																															
Automatic fire alarm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-
Fire and police pillar box	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Police telephone	-	50	30	5	20	5	15	15	15	-	-	-	25	-	15	-	-	70	-	80	-	5	15	55	-	125	40	25	-	5	20
Private fire telephone	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	25	-	40	-	30	-	15	-	15	-	110	45	-	-	-	-
Street fire alarm	-	5	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	65	-	-	-	-	-	-	-	40	-	-	-	-	-
Total	-	55	30	5	20	5	15	15	75	-	-	-	25	-	25	25	-	190	-	110	-	20	15	70	-	275	85	25	-	5	20
Exchange telephone	65	410	645	95	575	205	300	290	1395	445	260	345	860	820	615	975	140	2555	190	895	615	1680	230	1040	140	2500	2640	320	165	180	420
Running call	-	50	20	10	25	-	5	35	70	40	30	40	45	25	20	75	15	160	45	85	25	85	20	85	25	115	265	45	5	5	20
Late call	-	-	25	-	30	15	10	15	25	-	10	5	15	15	10	30	-	130	10	50	5	120	-	10	5	240	35	25	-	5	-
Other and undefined methods	-	5	5	5	-	-	-	-	-	-	-	-	-	-	30	15	-	25	-	5	20	5	15	15	-	40	5	-	-	-	5
Total fires	65	520	725	115	650	225	330	355	1565	485	300	390	945	860	700	1120	155	3060	245	1145	665	1910	280	1220	170	3170	3030	415	170	195	465

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATIONStatistical Analysis of reports of fires attended by Fire Brigades in
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2	Fires classified according to hazard in which fire started.
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5	Material first ignited in fires.
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8	Attendance of special appliances at fires.
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Zero percentages and percentages less than 0.05% are indicated by a dash (-) in the tables.

All reports were analysed to prepare Tables 9 and 10. Because of shortage of staff, a random one-in-five sample of reports was analysed for Tables 1, 2, 3, 4A, 4B, 5, 6, 7 and 8, the results of analysis of this sample were multiplied by five to obtain the figures given in the tables (except for Table 7). The method of selecting the sample and the accuracy of the estimated yearly totals and of the percentages of different types of occurrence are discussed in Appendix IV.

G. G. AUBER

J. E. L. HINTON

D. W. MILLAR

APPENDIX I

STATISTICAL TABLES FOR FIRE BRIGADES IN ENGLAND AND WALES, 1953

Table 1

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from England and Wales, 1953 -

(Frequencies obtained by multiplying results of analysis of a one in five sample of reports by five)

Method of Calling	County Fire Brigades																														
	Anglesey	Bedfordshire	Berkshire and Reading C.B.	Breconshire and Radnorshire	Buckinghamshire	Caernarvonshire	Cambridgeshire	Cardiganshire and Carmarthenshire	Cheshire	Cornwall	Cumberland	Denbighshire and Montgomeryshire	Derbyshire	Devon	Dorset	Durham	Ely, Isle of	Essex	Flintshire	Glamorgan	Gloucestershire	Hampshire	Herefordshire	Hertfordshire	Huntingdonshire	Kent and Canterbury	Lancashire	Leicestershire and Rutland	Lincolnshire, Holland	Lincolnshire, Kesteven	Lincolnshire, Lindsey
By Special Fire Service methods																															
Automatic fire alarm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-
Fire and police pillar box	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Police telephone	-	50	30	5	20	5	15	15	15	-	-	-	25	-	15	-	-	70	-	80	-	5	15	55	-	125	40	25	-	5	20
Private fire telephone	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	25	-	40	-	30	-	15	-	15	-	110	45	-	-	-	-
Street fire alarm	-	5	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	65	-	-	-	-	-	-	-	40	-	-	-	-	-
Total	-	55	30	5	20	5	15	15	75	-	-	-	25	-	25	25	-	190	-	110	-	20	15	70	-	275	85	25	-	5	20
Exchange telephone	65	410	645	95	575	205	300	290	1395	445	260	345	860	820	615	975	1140	2555	190	895	615	1680	230	1040	140	2500	2640	320	165	180	420
Running call	-	50	20	10	25	-	5	35	70	40	30	40	45	25	20	75	15	160	45	85	25	85	20	85	25	115	265	45	5	5	20
Late call	-	-	25	-	30	15	10	15	25	-	10	5	15	15	10	30	-	130	10	50	5	120	-	10	5	240	35	25	-	5	-
Other and undefined methods	-	5	5	5	-	-	-	-	-	-	-	-	-	-	30	15	-	25	-	5	20	5	15	15	-	40	5	-	-	-	5
Total fires	65	520	725	115	650	225	330	355	1565	485	300	390	945	860	700	1120	155	3060	245	1145	665	1910	280	1220	170	3170	3030	415	170	195	465

Corrigenda
F.R. Note No.120/1954

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATION

Statistical Analysis of reports of fires attended by Fire Brigades in
the United Kingdom during 1953.

Page 31 Column headed "Fires other than those in buildings":
"Slow combustion stove igniting other materials"
For "650" read "65"

Page 51 Column headed "Fires in buildings":
"Aircraft, crashed". For "5-" read "-"

APPENDIX I (Contd.)

Table 1 (contd.)

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one in five sample of reports by five)

Method of Calling	County Fire Brigades (Contd.)																										
	London	Merioneth	Middlesex	Monmouthshire	Norfolk	Northamptonshire	Northumberland	Nottinghamshire	Oxfordshire	Pembrokeshire	Peterborough, Soth of	Salop	Scilly, Isles of	Somerset	Staffordshire	Suffolk and Ipswich C.B.	Surrey	Sussex, East	Sussex, West	Warwickshire	Westmorland	Wight, Isle of	Wiltshire	Worcestershire and Worcester C.B.	Yorkshire East Riding	Yorkshire North Riding	Yorkshire West Riding
By Special Fire Service methods																											
Automatic fire alarm	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fire and police pillar box	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	10
Police telephone	-	-	5	20	-	10	15	5	10	-	5	15	-	40	100	40	85	35	5	55	10	-	15	45	20	50	80
Private fire telephone	55	-	90	-	-	-	-	-	-	-	-	15	-	-	5	-	20	-	-	-	-	-	5	-	70	5	
Street fire alarm	180	-	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	235	-	265	20	-	15	15	5	10	-	5	30	-	40	110	40	105	35	5	55	10	-	15	50	20	120	95
Exchange telephone	5955	50	2870	265	625	240	520	920	300	120	75	405	-	570	910	690	2430	860	590	745	65	125	555	555	240	465	2105
Running call	530	-	150	60	25	50	65	65	30	5	5	10	-	5	95	50	115	60	30	60	-	5	30	70	5	35	275
Late call	500	-	245	15	5	20	10	40	5	10	25	45	-	5	35	15	80	-	-	35	5	-	20	15	-	20	30
Other and undefined methods	25	-	10	-	5	-	10	-	-	5	-	-	-	20	5	-	-	55	15	10	30	-	5	10	5	15	15
Total fires	7245	50	3540	360	660	325	620	1030	345	140	110	490	-	640	1155	795	2730	1010	640	905	110	130	625	700	270	655	2520

APPENDIX I (Contd.)

Table 1 (contd.)

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one in five sample of reports by five)

	County Borough Fire Brigades																																											
Method of Calling	Barnsley	Barrow in Furness	Bath	Birkenhead	Birmingham	Blackburn	Blackpool	Bolton	Bootle	Bournemouth	Bradford	Brighton	Bristol	Burnley	Burton upon Trent	Bury	Cardiff	Carlisle	Chester	Coventry	Croydon	Darlington	Derby	Dewsbury	Doncaster	Dudley	Eastbourne	East Ham	Exeter	Gloucester	Great Yarmouth	Grimsby	Halifax	Hastings	Huddersfield	Kingston upon Hull	Leeds	Leicester	Lincoln	Liverpool	Manchester			
By Special Fire Service methods																																												
Automatic fire alarm	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fire and police pillar box	-	-	5	-	-	5	-	20	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Police telephone	35	10	5	50	150	45	35	45	35	-	110	70	120	25	-	10	45	10	25	100	35	30	10	5	20	25	-	5	25	5	20	40	10	-	15	125	125	15	20	210	185			
Private fire telephone	-	10	-	15	35	-	5	-	15	-	-	-	15	-	-	-	10	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	40	25			
Street fire alarm	-	-	-	-	125	-	-	-	-	-	-	10	-	-	-	-	15	-	-	-	5	-	-	-	-	-	10	20	-	-	-	-	-	-	-	5	-	5	-	-	185	50		
Total	35	20	10	65	320	50	40	65	50	-	110	80	150	25	-	10	70	10	25	100	45	30	10	5	20	25	10	25	25	5	20	40	10	-	15	130	125	30	20	435	260			
Exchange telephone	60	95	125	280	1575	120	255	210	125	300	405	180	575	130	40	125	355	140	95	285	235	120	150	80	110	75	80	140	130	115	75	120	120	85	145	410	580	330	165	935	920			
Running call	10	15	10	20	140	5	25	5	15	5	20	30	55	10	-	10	5	-	10	95	15	-	10	10	10	25	-	5	-	10	5	5	10	20	10	10	15	15	10	140	165			
Late call	-	-	10	20	55	15	10	5	25	-	40	-	90	5	-	-	20	-	5	5	40	-	-	15	15	-	5	5	-	-	-	-	5	5	10	40	25	-	-	100	170			
Other and undefined methods	-	-	-	-	5	-	5	-	-	-	5	-	-	-	15	-	15	-	-	10	15	-	10	-	-	-	15	-	-	-	-	-	-	-	-	5	-	25	-	-	-	5		
Total fires	105	130	155	385	2095	190	335	285	215	305	580	290	870	170	55	145	465	150	135	495	350	150	180	110	155	125	110	175	155	130	100	165	145	110	180	595	745	400	195	1610	1520			

APPENDIX I (Contd.)

Table 1 (contd.)

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a 1 in 5 sample of reports by 5)

Method of Calling	County Borough Fire Brigades (Contd.)																														Total fires attended in England and Wales																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Merthyr Tydfil	Middlesbrough	Newcastle upon Tyne and Gateshead	Newport	Northampton	Norwich	Nottingham	Oldham	Oxford	Plymouth	Preston	Rochdale	Rotherham	St. Helens	Salford	Sheffield	Smethwick and West Bromwich	Southampton	Southend	Southport	South Shields	Stockport	Stoke on Trent	Sunderland	Swansea	Tynemouth	Wakefield	Wallasey	Walsall	Warrington	West Ham	West Hartlepool	Wigan	Wolverhampton	York	No.	per cent																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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APPENDIX I (Contd.)

Table 2

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of
a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on		
<u>Agriculture</u>		
Farming (not fruit or poultry) and horse and stock rearing	1,465	1.9
Allotments, market gardening, fruit and poultry farming	295	0.4
Total	1,760	2.3
<u>Mining, quarrying and treatment of non- metalliferous mine and quarry products (excluding gas works)</u>	130	0.2
<u>Manufacture of bricks, pottery, glass, etc.</u>	105	0.1
<u>Manufacture of chemicals, dyes, explosives, paints, oils</u>		
Chemicals	195	0.3
Explosives	40	0.1
Paints, varnish, oils, grease	100	0.1
Miscellaneous	80	0.1
Total	415	0.5
<u>Manufacture of metals, machines, implements, conveyances</u>		
Smelting, converting, refining, rolling of iron, steel	100	0.1
Extracting, refining, smelting of other metals	55	0.1
Founding, other secondary processes in metal working	215	0.3
Engineering (not marine or electrical)	360	0.5
Electrical installations, cables and apparatus	180	0.2
Construction and repair of vehicles	200	0.3
Shipbuilding and repairing, marine engineering	70	0.1
Cutlery and small tools	25	-
Other metal industries	335	0.4
Total	1,540	2.0
<u>Manufacture of Textiles and textile goods (not dress)</u>		
Cotton	250	0.3
Wool, worsted, shoddy	110	0.1
Silk, natural and artificial	10	-
Other or mixed fibres	70	0.1
Miscellaneous	115	0.1
Textile dyeing, printing, bleaching, finishing	55	0.1
Total	610	0.8

APPENDIX I (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from England and Wales, 1953
(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Preparation of skins and leather and manufacture of goods of leather and leather substitute (not clothing or footwear)</u>	70	0.1
<u>Manufacture of clothing (not knitted) including footwear</u>	230	0.3
<u>Manufacture of food, drink, tobacco</u>		
Food	345	0.4
Drink	45	0.1
Tobacco, cigars, cigarettes, snuff	5	-
Total	395	0.5
<u>Woodworking: manufacture of cane and basket ware, furniture, fittings</u>		
Woodworking and basket ware	250	0.3
Furniture (not metal or basket)	225	0.3
Fittings	20	-
Total	495	0.6
<u>Paper making: manufacture of stationery and stationery requisites, printing and bookbinding</u>	185	0.2
<u>Building, decorating, contracting: slate and stone cutting and dressing</u>	825	1.1
<u>Rubber and synthetic rubber</u>	70	0.1
<u>Other manufacturing industries</u>	130	0.2
<u>Gas, water, electricity, sewage</u>	200	0.3
<u>Transport and communication</u>		
Railway - stations etc.	220	0.3
Road - garages, depots, etc.	1,030	1.3
Water - dock buildings other than warehouses	70	0.1
Air - aerodromes, etc.	10	-
Other communication (post, telephone, wireless)	125	0.2
Total	1,455	1.9

APPENDIX I (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Commerce</u>		
Departmental stores	115	0.1
Retail shops	2,510	3.2
Wholesale dealers	330	0.4
Dock and other warehouses	45	0.1
Total	3,000	3.8
<u>Offices, Government and other</u>		
Government departments	80	0.1
Local authorities	135	0.2
Other offices	275	0.4
Total	490	0.6
<u>Navy, Army and Air Force establishments</u>	295	0.4
<u>Fire service establishments</u>	15	-
<u>Professional establishments (other than offices); public institutions</u>		
Educational establishments	490	0.6
Hospitals, homes, etc. for the care of the sick and infirm	395	0.5
Places of worship	195	0.3
Other public and professional services	215	0.3
Total	1,295	1.7
<u>Places of public entertainment</u>		
Cinemas and theatres	210	0.3
Other places of entertainment	315	0.4
Total	525	0.7
<u>Private residential and personal service (including hotels and catering)</u>		
Private residential houses	15,295	19.7
Private residential flats	2,945	3.8
Clubs, restaurants, public houses	2,545	3.3
Private huts, unoccupied houses, personal service	1,645	2.1
Total	22,430	28.9
<u>Miscellaneous</u>	1,275	1.6
<u>Undefined</u>	25	-
Total fires in buildings	37,965	48.9

APPENDIX I (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires other than those in buildings		
<u>Agriculture and Forestry</u>		
Crops, standing or stooked (including hay fields)	575	0.7
Crops, ricks and stacks	1,460	1.9
Agricultural machinery	370	0.5
Agricultural waste	175	0.2
Other agricultural hazards	485	0.6
Allotments and gardens	715	0.9
Railway embankments	2,995	3.9
Grassland, heathland	13,305	17.1
Woods, forests, plantations	820	1.1
Single trees	1,365	1.8
Felled timber	55	0.1
Total	22,320	28.7
<u>Transport and communication</u>		
Aircraft	90	0.1
Railway, rolling stock etc.	470	0.6
Road vehicles - electrically driven	95	0.1
- oil, petrol or gas driven	5,920	7.6
- other	55	0.1
Water vessels - craft on inland waters	160	0.2
- ships in dock	330	0.4
- ships at sea	-	-
- marine structures	25	-
Total	7,145	9.2
<u>Outdoor storage</u>		
Chemicals, explosives, ammunition, oils, grease	405	0.5
Coal and coke	105	0.1
Refuse	4,475	5.8
Timber	665	0.9
Cotton, metal, packing materials, rubber, etc.	760	1.0
Total	6,410	8.3
<u>Other outdoor structures</u>	3,810	4.9
Total fires other than those in buildings	39,685	51.1
Total fires attended	77,650	100.0

APPENDIX I (Contd.)

Table 3

SUPPOSED CAUSE OF FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Each item in the list of supposed causes of fire given in this table represents a group of causes which have a common source of ignition. In some cases the groups have been divided into sub-groups according to the nature of the material first ignited and in others according to the act with the source of ignition which led to the outbreak of fire.

Supposed cause of fire	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Aircraft, crashed	-	-	85	0.1	85	0.1
Ashes	685	0.9	1,140	1.5	1,825	2.4
Brazier	85	0.1	95	0.1	180	0.2
Candle	305	0.4	10	-	315	0.4
Chimney on fire, not confined to chimney	2,000	2.6	5	-	2,005	2.6
Chimney, sparks from (outside building)	480	0.6	65	0.1	545	0.7
Doubtful	45	0.1	30	-	75	0.1
Electric cooker	870	1.1	-	-	870	1.1
fire, heater, radiator	975	1.3	20	-	995	1.3
iron	295	0.4	-	-	295	0.4
Electric motor	240	0.3	50	0.1	290	0.4
refrigerator	910	1.2	15	-	925	1.2
television	145	0.2	-	-	145	0.2
wire and cable, lead to apparatus	245	0.3	300	0.4	545	0.7
wire and cable, other than lead to apparatus	2,270	2.9	2,310	3.0	4,580	5.9
wireless	360	0.5	15	-	375	0.5
Electric other apparatus	880	1.1	495	0.6	1,375	1.8
Explosives, fireworks	165	0.2	390	0.5	555	0.7
Fire in grate igniting bedding, clothing, linen	950	1.2	-	-	950	1.2
Fire in grate igniting furniture, furnishings	775	1.0	-	-	775	1.0
Fire in grate igniting structural timber under hearth	605	0.8	-	-	605	0.8
Fire in grate igniting other materials	3,540	4.5	-	-	3,540	4.5
Fish frying range (all fuels)	950	1.2	10	-	960	1.2
Flue	980	1.3	90	0.1	1,070	1.4
Furnace (coal or coke)	40	0.1	-	-	40	0.1
Gas (coal) burner, jet, ring cooker	530	0.7	195	0.3	725	0.9
fire, heater, radiator	1,050	1.4	5	-	1,055	1.4
other apparatus	160	0.2	-	-	160	0.2
Incendiarism	340	0.4	130	0.2	470	0.6
	50	0.1	-	-	50	0.1

APPENDIX I (Contd.)

Table 3 (Contd.)

SUPPOSED CAUSE OF FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Supposed cause of fire	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Incubator, brooder, (all fuels)	555	0.7	20	-	575	0.7
Intentional burning of grassland, gorse, etc.	10	-	585	0.8	595	0.8
Lightning	120	0.2	25	-	145	0.2
Lime	5	-	55	0.1	60	0.1
Locomotives, sparks from	175	0.2	5,250	6.8	5,425	7.0
Matches	675	0.9	705	0.9	1,380	1.8
Matches, children playing with	1,910	2.5	7,990	11.2	9,900	13.6
Mechanical heat or sparks	490	0.6	355	0.5	845	1.1
Metal, hot	170	0.2	45	0.1	215	0.3
Oil, blowlamp	785	1.0	25	-	810	1.0
Oil, engine (including petrol)	245	0.3	2,230	2.9	2,475	3.2
lamp, stove	655	0.8	230	0.3	885	1.1
tractor	75	0.1	340	0.4	415	0.5
other apparatus	145	0.2	205	0.3	350	0.5
Oxyacetylene cutting and welding apparatus	320	0.4	330	0.4	650	0.7
Rubbish burning	620	0.8	3,460	4.5	4,080	5.3
Slow combustion stove igniting structural woodwork	250	0.3	-	-	250	0.3
Slow combustion stove igniting other materials	850	1.1	310	0.4	1,160	1.5
Smoking materials	3,075	4.0	3,955	5.1	7,030	9.1
Spontaneous combustion in rubbish	5	-	105	0.1	110	0.1
Spontaneous combustion in other materials	140	0.2	330	0.4	470	0.6
Static electricity	30	-	-	-	30	-
Steam roller, engine, traction engine	-	-	-	-	-	-
Sun's rays	60	0.1	85	0.1	145	0.2
Taper, lighted paper or sticks	275	0.4	70	0.1	345	0.4
Taper, lighted paper or sticks, children playing with	50	0.1	15	-	65	0.1
Miscellaneous and undefined	1,575	2.0	1,250	1.6	2,825	3.6
Unknown source of ignition	3,775	4.9	6,260	8.1	10,035	12.9
Total number of fires	37,965	48.9	39,685	51.1	77,650	100.0

APPENDIX I (Contd.)
Table 4A

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED
Reports from England and Wales, 1953
(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		21	22	23	24	25	26	27
Hazard in which fire started																												
Supposed cause of fire																												
Row No.																												
1	Astres, Brazier	10	10	10	20	10	10	5	5	10	5	10	5	45	45	5	25	5	15	5	180	70	5	200	30	685	1	
2	Candle	5	5	5	15	5	5	5	5	5	5	5	5	15	10	10	5	5	5	5	5	205	25	5	5	5	85	2
3	Chimney on fire, not confined to chimney	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	35	-	160	50	15	25	5	305	3
4	Chimney, sparks from (outside building)	20	5	-	15	-	-	-	10	-	15	10	5	10	10	5	5	-	-	-	325	10	15	30	5	2000	4	
5	Doubtful	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	15	-	-	480	5	
6	Electric cooker	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	5	5	5	-	-	45	6	
7	Electric fire, heater, radiator	15	-	5	10	30	10	5	5	15	5	5	5	30	55	5	20	10	25	30	645	160	90	10	-	870	7	
8	Electric iron	-	-	5	30	5	25	15	5	10	5	5	5	10	20	5	15	5	5	25	195	25	5	5	-	975	8	
9	Electric motor	-	-	-	30	5	10	5	20	10	5	5	5	10	60	5	15	5	5	20	10	10	25	10	-	295	9	
10	refrigerator	-	-	-	20	5	-	25	-	-	-	-	-	-	515	10	5	5	5	25	125	35	105	-	-	910	11	
11	television	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	90	40	-	-	-	145	12	
12	wire and cable, other than lead to apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	
13	apparatus	75	5	10	30	35	15	25	-	15	30	15	55	220	275	15	45	5	5	55	870	195	125	30	10	2270	13	
14	Electric wire and cable, lead to apparatus	10	-	-	15	5	-	10	5	-	5	-	-	5	-	5	-	-	-	-	105	-	5	5	-	245	14	
15	Electric wireless	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	60	10	-	-	-	360	15	
Row Total No.																												

16	Electric other apparatus	20	-	-	20	70	25	10	30	5	15	-	5	20	100	115	20	10	-	-	40	30	260	45	25	15	-	880	16
17	Explosives, fireworks	10	-	-	10	5	-	-	-	-	-	10	5	-	5	10	5	5	-	-	10	10	50	5	5	15	5	165	17
18	Fire in grate igniting bedding, clothing, linen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	810	130	-	5	-	950	18
19	Fire in grate igniting furniture and furnishings	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	665	75	20	5	-	775	19
20	Fire in grate igniting structural timber under hearth	-	-	-	-	-	-	5	-	5	-	-	-	-	-	5	10	-	-	-	5	-	390	140	45	-	-	605	20
21	Fire in grate igniting other materials	-	-	-	-	5	5	25	5	15	-	10	5	5	15	95	10	15	10	-	65	-	2575	510	140	30	-	3540	21
22	Fish frying range (all fuels)	-	-	5	-	-	-	-	20	-	-	-	-	-	10	5	5	5	25	-	35	-	-	-	840	-	-	950	22
23	Flue	25	-	5	15	50	-	-	10	35	5	10	-	-	10	45	5	15	15	-	55	20	485	25	100	45	5	980	23
24	Furnace (coal or coke)	-	-	-	-	30	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	40	24	
25	Gas (coal) burner, jet, ring	-	-	5	25	25	10	15	20	-	-	5	20	-	15	45	10	10	-	-	20	-	225	55	20	5	-	530	25
26	Gas (coal) cooker	-	5	-	-	-	-	-	10	-	-	-	-	-	10	50	-	-	5	10	15	5	630	205	105	-	-	1050	26
27	fire, heater, radiator	-	-	-	10	5	-	-	-	-	-	-	-	-	-	15	-	-	-	-	10	5	70	35	5	5	-	160	27
28	other apparatus	-	-	-	5	65	15	-	25	-	-	-	10	10	5	25	-	15	-	-	20	-	110	15	15	5	-	340	28
29	Incendiarism	5	-	-	-	5	-	-	-	-	-	-	-	-	10	10	-	-	-	-	-	-	10	5	5	-	-	50	29
30	Incubator, brooder (all fuels)	330	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	25	-	10	185	-	555	30
31	Intentional burning of grassland, gorse, etc.	5	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	10	31
32	Lightning	10	-	-	5	5	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	10	-	-	120	32
33	Lime	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	33
34	Locomotives, sparks from	20	-	5	-	10	-	-	-	10	-	5	5	-	70	-	-	-	-	-	-	-	15	-	-	15	20	175	34
35	Matches	30	-	-	-	15	5	5	-	-	-	5	10	-	45	40	5	20	-	-	50	15	230	95	35	40	30	675	35
36	Matches, children playing with	170	5	5	-	30	5	-	5	20	5	65	-	5	40	85	15	25	10	-	90	50	245	70	20	180	765	1910	36
37	Mechanical heat or sparks	-	5	5	35	50	250	25	20	20	10	-	20	-	5	-	15	-	5	-	-	-	10	5	-	10	-	490	37
38	Metal, hot	-	-	-	-	125	-	-	-	-	-	5	-	10	5	-	-	-	-	-	5	15	5	-	-	-	-	170	38
39	Oil, blow lamp	-	-	-	5	-	-	5	10	-	-	25	-	5	25	90	-	25	10	-	30	-	420	70	45	20	-	785	39
40	engine (including petrol)	45	-	-	-	-	5	-	-	-	-	20	-	-	85	15	10	5	-	-	5	-	-	-	10	45	-	245	40
41	Oil lamp, stove	35	5	-	-	20	5	5	-	10	-	45	-	-	75	25	-	5	25	-	15	-	260	45	15	55	10	655	41
42	tractor	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	75	42
43	other apparatus	30	-	-	20	25	5	-	5	5	-	-	-	-	5	-	5	-	-	-	-	5	40	-	-	-	-	145	43
44	Oxyacetylene cutting and welding apparatus	15	15	-	15	100	-	-	10	5	5	50	5	10	40	15	-	10	-	-	10	-	-	5	-	-	10	320	44
45	Rubbish burning	40	-	-	5	35	-	-	-	30	5	40	-	5	35	130	15	5	10	-	30	5	35	-	15	140	40	620	45
	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

APPENDIX I (Contd.)

Table 4A (Contd.)

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED
Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Row No.	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Row No.
	Hazard in which fire started	Agriculture	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)	Manufacture of bricks, pottery, glass etc.	Manufacture of chemicals, explosives, paints, oils	Manufacture of metals, machines, implements, conveyances	Manufacture of textiles and textile goods (not dress)	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather	Manufacture of food, drink, tobacco	Woodworking; manufacture of cane and basket ware, furniture, fittings	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding	Building, decorating, contracting; slate and stone cutting and dressing	Other manufacturing industries, including rubber and synthetic rubber	Gas, water, electricity, sewage	Transport and communication	Commerce; retail shops, including departmental stores	Commerce; wholesale dealers and warehouses	Offices; Government and other	Navy, Army, Air Force establishments	Fire Service establishments	Professional establishments (other than offices), public institutions	Places of public entertainment	Private residential houses	Private residential flats	Clubs, hotels, restaurants, public houses	Private huts, unoccupied houses, personal service	Miscellaneous and undefined	Total	
46	Slow combustion stove igniting structural woodwork	20	5	-	5	15	-	5	-	-	-	30	-	10	5	5	-	15	15	-	25	15	30	10	10	15	15	250	46
47	Slow combustion stove igniting other material	70	20	-	20	60	25	5	20	50	-	60	10	-	40	40	15	10	25	-	75	40	155	25	30	10	45	850	47
48	Smoking materials	95	10	15	35	130	40	65	25	50	45	125	20	10	145	330	60	70	40	-	140	115	835	185	285	110	95	3075	48
49	Spontaneous combustion in rubbish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	5	49
50	Spontaneous combustion in other material	10	5	5	5	15	25	-	-	5	-	5	10	5	-	10	5	-	-	-	5	5	10	-	15	-	-	140	50
51	Static electricity	-	-	-	10	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	5	-	30	51
52	Steam roller, engine, traction engine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52
53	Sun's rays	-	-	-	-	-	5	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	20	5	-	-	-	60	53
54	Taper, lighted paper or sticks	5	-	-	-	5	10	-	5	-	-	5	-	5	-	15	-	5	-	-	25	5	150	15	20	5	-	275	54
55	Taper, lighted paper or sticks, children playing with	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	5	-	-	-	50	55
56	Miscellaneous and undefined	125	-	15	15	180	50	5	35	70	15	90	10	20	70	50	45	-	10	-	75	15	455	60	65	60	40	1575	56
57	Unknown source of ignition	425	35	10	110	225	65	35	45	105	45	130	20	10	220	255	60	85	55	-	195	100	750	155	175	295	170	3775	57
58	Total fires in buildings	1760	130	105	415	1540	610	300	395	495	185	825	200	200	1455	2625	375	490	295	15	1295	525	15295	2945	2516	1645	1300	37965	58
	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

APPENDIX I (Contd.)

Table 4B

SUPPOSED CAUSE OF FIRES OTHER THAN THOSE IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a 1-in-5 sample of reports by 5)

Row No.	Column No. Hazard in which fire started Supposed cause of fire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Row No.
		Crops	Agricultural machinery	Agricultural waste	Agriculture, other	Gardens and allotments	Railway embankments	Grassland, heathland	Woods, forests, plantations	Single trees	Felled timber	Transport and communications					Outdoor storage					Miscellaneous outdoor structures	Total	
15	1 Aircraft, crashed	5	-	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	85	1
	2 Ashes	-	-	-	-	15	30	45	-	5	-	-	10	120	-	50	-	30	685	30	40	80	1140	2
	3 Brazier	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	10	-	-	-	-	80	95	3
	4 Candle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5	10	4
	5 Chimney on fire, not confined to chimney	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5
	6 Chimney, sparks from (outside building)	5	-	-	-	-	-	20	5	5	-	-	-	5	-	-	-	5	-	5	10	5	65	6
	7 Doubtful	5	-	-	-	-	-	15	-	-	-	-	-	10	-	-	-	-	-	-	-	-	30	7
	8 Electric cooker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	9 " fire, heater, radiator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	15	20	9
	10 " motor	-	-	-	-	-	-	-	-	-	-	-	-	-	20	10	-	-	-	-	-	20	50	10
	11 Electric refrigerator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	11
	12 " wire and cable, other than lead to apparatus	-	30	-	-	-	-	-	-	5	-	-	10	1565	40	10	-	-	-	-	-	650	2310	12
	13 " wire and cable, lead to apparatus	-	10	-	-	-	-	-	-	-	-	-	-	280	5	-	-	-	-	-	-	5	300	13
	14 " other apparatus	-	25	-	-	-	-	-	-	-	-	-	10	320	25	35	5	-	-	-	-	90	510	14
	15 Explosives, fireworks	50	-	5	-	-	5	65	10	65	-	-	-	35	-	-	5	-	20	5	5	120	390	15
	16 Fish frying range (all fuels)	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	10	16
	17 Flue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5	5	75	90	17
	18 Furnace (coal or coke)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
	19 Gas (coal) burner, jet, ring	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5	-	-	-	-	185	195	19
	20 " other apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	130	135	20

APPENDIX I (Contd.)

Table 4B (Contd.)

SUPPOSED CAUSE OF FIRES OTHER THAN THOSE IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED
Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a 1-in-5 sample of reports by 5)

Row No.	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	Row No.
	Hazard in which fire started Supposed cause of fire	Crops	Agricultural machinery	Agricultural waste	Agriculture, other	Gardens and allotments	Railway embankments	Grassland, heathland	Woods, forests, plantations	Single trees	Felled timber	Transport and communications					Outdoor storage					Miscellaneous outdoor structures			
												Air	Rail	Road - oil, petrol or gas driven vehicles	Road - other vehicles	Water	Chemicals, explosives, ammunition, oils, grease	Coal and coke	Refuse	Timber	Other materials				
21	Incendiarism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
22	Incubator, brooder (all fuels)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
23	Intentional burning of grass-land, gorse etc.	5	-	-	-	25	40	410	55	10	-	-	-	-	-	-	-	-	-	-	-	15	20	-	23
24	Lightning	5	-	-	-	-	-	5	-	10	-	-	-	-	-	-	-	-	10	5	5	25	505	-	24
25	Lime	-	-	-	-	-	-	-	-	-	-	-	10	5	-	-	-	-	-	-	-	5	25	-	25
26	Locomotives, sparks from	355	-	15	95	60	2725	1180	115	5	-	-	225	10	-	-	-	-	-	-	-	40	55	-	26
27	Matches	25	-	5	5	15	10	345	25	10	-	-	-	10	-	-	10	-	70	65	65	255	5250	-	27
28	Matches, children playing with	300	5	5	105	90	80	4100	155	695	35	-	10	125	20	5	30	5	100	85	165	115	705	-	28
29	Mechanical heat or sparks	5	5	-	-	-	-	-	-	-	-	-	25	245	5	-	45	5	1595	5	5	15	355	-	29
30	Metal, hot	-	-	-	-	-	-	-	-	-	-	-	5	-	-	15	-	-	5	5	5	10	45	-	30
31	Oil, blow lamp	-	-	-	-	-	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	15	25	-	31
32	" engine (including petrol)	10	15	-	5	-	-	-	-	-	-	-	5	2060	-	45	10	-	5	5	-	70	2230	-	32
33	" lamp, stove	-	-	-	5	-	-	10	-	-	-	-	10	55	-	20	20	-	5	-	-	105	230	-	33
34	" tractor	95	180	-	30	-	-	5	-	-	-	-	-	25	5	-	-	-	-	-	-	-	340	-	34
35	" other apparatus	40	90	-	5	-	-	15	5	-	-	-	-	20	-	25	-	-	-	-	-	5	205	-	35
36	Oxyacetylene cutting and welding apparatus	-	-	-	-	-	-	10	5	-	-	-	10	45	-	100	35	-	10	10	30	75	330	-	36
37	Rubbish burning	215	-	90	105	315	15	1160	85	195	10	-	5	40	10	-	35	10	745	220	90	115	3460	-	37
38	Slow combustion stove igniting structural woodwork	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38
39	" other materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39
40	Smoking materials	175	-	5	55	100	35	1915	100	50	-	-	5	10	5	20	10	5	515	10	5	240	310	-	40
													20	335	-	80	20	5		90	135	320	3955		

(65316)

41	Spontaneous combustion in rubbish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	105	41	
42	Spontaneous combustion in other materials	160	-	-	10	-	5	-	-	-	-	20	5	-	10	20	15	15	10	45	15	330	42	
43	Static electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	
44	Steam roller, engine, traction engine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	
45	Sun's rays	-	-	-	-	5	-	70	5	-	-	-	-	-	-	-	-	-	-	-	5	85	45	
46	Taper, lighted paper or sticks	-	-	-	-	5	-	5	-	5	-	-	-	-	-	5	-	15	-	10	25	70	46	
47	Taper, lighted paper or sticks, children playing with	5	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	15	47	
48	Miscellaneous and undefined	55	-	10	10	15	-	535	55	50	5	-	35	85	5	35	25	30	70	10	40	180	1250	48
49	Unknown source of ignition	520	10	40	55	70	50	3380	200	255	5	10	50	495	5	45	55	5	500	100	90	320	6260	49
50	Total fires other than those in buildings	2035	370	175	485	715	2995	13305	820	1365	55	90	470	5920	150	515	405	105	4475	665	760	3810	39685	50
	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

APPENDIX I (Contd.)

Table 5

MATERIAL FIRST IGNITED IN FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis
one-in-five sample of reports by five)

Material first ignited	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
<u>Agriculture and Forestry</u>						
Crops, ricks, stacks						
Barley	-	-	185	0.2	185	0.2
Hay	160	0.2	395	0.5	555	0.7
Straw	130	0.2	410	0.5	540	0.7
Stubble	-	-	220	0.3	220	0.3
Other	5	-	200	0.3	205	0.3
Loose straw or hay	510	0.7	730	0.9	1,240	1.6
Grass, heather, bracken	35	-	7,815	10.1	7,850	10.1
Trees, hedges, undergrowth, brushwood, bushes (including gorse), twigs, touchwood	35	-	8,055	10.4	8,090	10.4
Other agricultural materials	35	-	150	0.2	185	0.2
Total	910	1.2	18,160	23.4	19,070	24.6
<u>Chemicals - gases</u>						
Acetylene	50	0.1	30	-	80	0.1
Coal gas	940	1.2	505	0.7	1,445	1.9
Other gases	115	0.1	45	0.1	160	0.2
Total	1,105	1.4	580	0.7	1,685	2.2
<u>Chemicals - oils</u>						
Animal and vegetable oils	165	0.2	-	-	165	0.2
Mineral oil						
Paraffin	495	0.6	125	0.2	620	0.8
Petrol in vehicles	455	0.6	2,725	3.5	3,180	4.1
Petrol not in vehicles	355	0.5	100	0.1	455	0.6
Other mineral oils	140	0.2	70	0.1	210	0.3
Oil, waste and undefined	305	0.4	420	0.5	725	0.9
Total	1,915	2.5	3,440	4.4	5,355	6.9
<u>Chemicals - other</u>						
Celluloid (including films)	25	-	-	-	25	-
Paint, enamel, lacquer, varnish, stains and French polish	140	0.2	30	-	170	0.2
Pitch, tar	125	0.2	155	0.2	280	0.4
Rubber, vulcanite, ebonite	155	0.2	200	0.3	355	0.5
Other chemicals	680	0.9	240	0.3	920	1.2
Total	1,125	1.4	625	0.8	1,750	2.3
<u>Paper, cardboard, wood (not part of a structure)</u>						
Paper, cardboard	1,775	2.3	880	1.1	2,655	3.4
Wood chippings, flour, sawdust, shavings, wool	505	0.7	275	0.4	780	1.0
Wood barrels, boxes, cases, firewood etc.	725	0.9	155	0.2	880	1.1
Timber	125	0.2	240	0.3	365	0.5
Total	3,130	4.0	1,550	2.0	4,680	6.0

APPENDIX I (Contd.)

Table 5 (Contd.)

MATERIAL FIRST IGNITED IN FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Material first ignited	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	per cent
<u>Textiles</u>						
Canvas and canvas goods	65	0.1	95	0.1	160	0.2
Clothing on person	350	0.5	20	-	370	0.5
Clothing not on person	1,320	1.7	110	0.1	1,430	1.8
Cotton	290	0.4	40	0.1	330	0.4
Jute, hessian, sacking	380	0.5	180	0.2	560	0.7
Rags (including oily rags)	195	0.3	185	0.2	380	0.5
Tarpaulin, waterproof sheeting, oilskins	100	0.1	390	0.5	490	0.6
Other textiles	200	0.3	70	0.1	270	0.3
Total	2,900	3.7	1,090	1.4	3,990	5.1
<u>Furniture, furnishings, household goods</u>						
Bedding	710	0.9	25	-	735	0.9
Carpets, rugs	540	0.7	20	-	560	0.7
Curtains	590	0.8	-	-	590	0.8
Furniture	1,845	2.4	30	-	1,875	2.4
Linen articles (unspecified), laundry	305	0.4	15	-	320	0.4
Seating in vehicles	65	0.1	280	0.4	345	0.4
Other furnishings	660	0.8	50	0.1	710	0.9
Total	4,715	6.1	420	0.5	5,135	6.6
<u>Building materials, structural woodwork</u>						
Building materials other than wood	490	0.6	5	-	495	0.6
Structural woodwork						
External	680	0.9	1,115	1.4	1,795	2.3
Internal						
Door, window frame	390	0.5	-	-	390	0.5
Floor, stairs	2,465	3.2	-	-	2,465	3.2
Partitions, linings to walls	690	0.7	-	-	690	0.7
Roof	795	1.0	-	-	795	1.0
Timber in chimney, flue	495	0.6	-	-	495	0.6
Timber under hearth	640	0.8	-	-	640	0.8
Other fittings	745	1.0	-	-	745	1.0
Total	7,390	9.5	1,120	1.4	8,510	11.0
<u>Miscellaneous</u>						
Coal, coke	120	0.2	130	0.2	250	0.3
Electrical insulation	3,115	4.0	2,200	2.8	5,315	6.8
Fat (margarine, suet, butter, cooking fat, lard)	2,290	2.9	20	-	2,310	3.0
Food other than fat	340	0.4	15	-	355	0.5
Refuse, rubbish, debris	2,095	2.7	4,845	6.2	6,940	8.9
Soot	500	0.6	5	-	505	0.7
Other	2,810	3.6	1,205	1.6	4,015	5.2
<u>Unknown</u>	3,505	4.5	4,280	5.5	7,785	10.0
Total number of fires	37,965	48.9	39,685	51.1	77,650	100.0

APPENDIX I (Contd.)

Table 6

METHOD OF EXTINCTION OF FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Row No.	Method of extinction	Fires in buildings						Fires other than those in buildings						Total No. of fires		Row No.
		Extinguished by Fire Brigade		Extinguished before arrival of Fire Brigade		Total		Extinguished by Fire Brigade		Extinguished before arrival of Fire Brigade		Total				
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	
20	1 Burned out	-	-	800	1.0	800	1.0	-	-	985	1.3	985	1.3	1,785	2.3	1
	2 Removal	2,870	3.7	1,135	1.5	4,005	5.2	655	0.8	335	0.4	990	1.3	4,995	6.4	2
	3 Automatic sprinkler system	-	-	25	-	25	-	-	-	-	-	-	-	25	-	3
	4 Beating	35	-	170	0.2	205	0.3	6,670	8.8	835	1.1	7,705	9.9	7,910	10.2	4
	5 Smothering	275	0.4	635	0.8	910	1.2	40	0.1	395	0.5	435	0.6	1,345	1.7	5
	6 Sand, earth, etc.	50	0.1	165	0.2	215	0.3	130	0.2	260	0.3	390	0.5	605	0.8	6
	7 Water from buckets	2,385	3.1	2,635	3.4	5,020	6.5	335	0.4	815	1.0	1,150	1.5	6,170	7.9	7
	8 Water from stirrup or hand pumps	2,930	3.8	30	-	2,960	3.8	180	0.2	5	-	185	0.2	3,145	4.1	8
	9 Chemicals and chemical extinguishers	1,815	2.3	1,035	1.3	2,850	3.7	1,500	1.9	925	1.2	2,425	3.1	5,275	6.8	9
	10 Two or more methods 4 - 9	55	0.1	315	0.4	370	0.5	430	0.6	230	0.3	660	0.8	1,030	1.3	10
	11 Water from garden hose, etc.	-	-	105	0.1	105	0.1	-	-	70	0.1	70	0.1	175	0.2	11
	12 Hose reel jets (using water in tank only)	12,880	16.6	20	-	12,900	16.6	15,615	20.1	125	0.2	15,740	20.3	28,640	36.9	12
	13 Hose reel jets (using more water than that in tank)	2,065	2.7	5	-	2,070	2.7	1,375	1.8	5	-	1,380	1.8	3,450	4.4	13
	14 Jets from inside hose reel or inside hydrant	115	0.1	45	0.1	160	0.2	-	-	5	-	5	-	165	0.2	14
	15 Hose reel jets and jets from inside hose reel	35	-	-	-	35	-	5	-	-	-	5	-	40	0.1	15
	16 Jets from pumps and hydrants	4,430	5.7	120	0.2	4,550	5.9	6,970	9.0	150	0.2	7,120	9.2	11,670	15.0	16
	17 Other and undefined methods	355	0.5	430	0.6	785	1.0	145	0.2	295	0.4	440	0.6	1,225	1.6	17
	Total	30,295	39.0	7,670	9.9	37,965	48.9	34,250	44.1	5,435	7.0	39,685	51.1	77,650	100.0	18

Notes on method of extinction -

1. "Removal" includes occurrences where (a) burning material was removed from the building, (b) gas supply was turned off. If the burning material was tackled with methods 3-11 before removing it from the building, then such occurrences were classified under whichever of these methods applied.
2. Methods 11-15 and method 16 include those occurrences in which methods 3-10 and 3-15 respectively may also have been used.
3. "Fires extinguished by Fire Brigade" include those fires which were tackled but not extinguished before the arrival of the Fire Brigade.

APPENDIX I (Contd.)

Table 7

BEHAVIOUR OF SPRINKLER SYSTEMS AT FIRES

Reports from England and Wales, 1953

(Frequencies observed in the analysis of a one-in-five sample of reports)

Note: These figures are not on a comparable basis with those in tables 1-6 or tables 8-10

Behaviour of sprinklers	Incidents in which the following number of heads were actuated						Total number of incidents
	Nil	1-5	6-10	11-20	More than 20	Number not reported	
Installed but did not operate							
(i) because insufficient heat was generated by the fire	32	-	-	-	-	-	32
(ii) because the heat did not reach the heads	3	-	-	-	-	-	3
(iii) because the fire was extinguished before the heads operated	5	-	-	-	-	-	5
(iv) because the heat was drawn away from the heads by fans or air conditioning plants	3	-	-	-	-	-	3
Total	43	-	-	-	-	-	43
Operated but did not control fire	-	1	-	-	-	-	1
Controlled but did not extinguish fire	-	25	2	2	3	1	33
Extinguished the fire	-	5	-	-	-	-	5
Number of calls to fires where sprinkler systems were installed	43	31	2	2	3	1	82

APPENDIX I (Contd.)

Table 8

ATTENDANCE OF SPECIAL APPLIANCES AT FIRES

Reports from England and Wales, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Attendance	No. of * occasions	Percentage of total no. of fires
Breakdown lorries and control units	90	0.1
Canteen vans	90	0.1
Emergency tenders	1,875	2.4
Escape carrying units and escape carriers	175	0.2
Fire boats	135	0.2
Foam tenders	585	0.8
Hose-laying lorries and hose carriers	345	0.4
Land Rovers	670	0.9
Pump escapes	39,280	50.6
Pumps	42,215	54.4
Pump salvage tenders	2,835	3.7
Salvage tenders	1,655	2.1
Turntable ladders (hand operated)	220	0.3
Turntable ladders (mechanical)	5,480	7.1
Utility vans	7,620	9.8
Water tenders	27,055	34.8
Wireless cars	12,450	16.0

* The number of occasions on which fires were attended by one or more of the different special appliances is given.

APPENDIX I (Contd.)

Table 9

PERSONS RESCUED OR ESCAPED BY EMERGENCY MEANS FROM FIRES

Reports from England and Wales, 1953

(Frequencies obtained from results of analysis of all reports)

Appliance or method used	Number of persons
Rescue with Fire Brigade assistance from	
Buildings	
Escape (hand operated,	14
Ladder, extension	38
first floor	10
turntable (mechanical)	9
other or undefined	58
Ladder and line	3
Line	3
Other apparatus	5
Without apparatus	43
Total	183
Rescue without F.B assistance from	
Aircraft	1
Buildings	
Carried or assisted out	119
Jumping sheet	2
Ladder	58
Lowered from windows, roof, etc.	55
Other or undefined methods	23
Road vehicles	6
Ships	4
Caravans	2
Total	270
Escape by emergency means from	
Aircraft	
Baled out	8
Through exits or from debris	6
Buildings	
Climbing over roof	18
Fixed fire escape	1
Jumping from upstairs window, roof	131
Ladder	9
Sliding down drainpipe, sheets, rope etc.	31
Through ground floor windows	8
Other or undefined means	14
Road vehicles	2
Ships	1
Caravans	1
Total	230
Total persons rescued or escaped	683

APPENDIX I (Contd.)

Table 10

NATURE OF INJURIES OF CASUALTIES IN FIRES

Reports from England and Wales, 1953

(Frequencies obtained from results of analysis of all reports)

* Casualties who suffered shock in addition to another injury have been classified according to the nature of the other injury.

Nature of injury	Fire Brigade	Other Casualties	Total
Fatal casualties			
Burns and scalds	-	271	271
Overcome by gas or smoke	2	31	33
Other and undefined injuries	1	75	76
Total	3	377	380
Non-fatal casualties			
Burns and scalds	232	2,641	2,873
Bruises, cuts, abrasions	522	309	831
Dislocations, sprains, fractures	92	37	129
Overcome by gas or smoke	48	87	135
More than one of the above injuries	52	61	113
* Shock	5	288	293
Other undefined injuries	175	159	334
Total	1,126	3,582	4,708
Total casualties	1,129	3,959	5,088

APPENDIX II

STATISTICAL TABLES FOR FIRE BRIGADES IN SCOTLAND, 1953

Table 1

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Method of calling	Fire Brigade											Total	
	Glasgow	Lanark	Central	Western	South Western	South Eastern	Fife	Perth and Kinross	Angus	North Eastern	Northern	No.	Per cent
By Special Fire Service methods													
Automatic fire alarm	-	-	-	-	-	-	-	-	-	-	-	-	-
Fire and police pillar box	-	-	-	-	-	-	-	-	-	-	-	-	-
Police telephone	475	135	100	190	55	245	60	5	245	370	5	1,885	23.4
Private fire telephone	10	20	-	5	10	-	-	-	-	-	-	45	0.6
Street fire alarm	245	-	5	-	-	-	-	-	-	-	-	250	3.1
Total	730	155	105	195	65	245	60	5	245	370	5	2,180	27.0
Exchange telephone	905	520	455	490	490	1,010	325	235	455	245	200	5,330	66.1
Running call	200	70	30	5	30	60	20	-	10	20	10	455	5.6
Late call	-	-	10	-	-	-	-	-	-	-	-	10	0.1
Other and undefined methods	5	10	10	5	-	5	5	-	-	35	10	85	1.1
Total fires	1,840	755	610	695	585	1,320	410	240	710	670	225	8,060	100.0

APPENDIX II (Contd.)

Table 2

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on		
<u>Agriculture</u>		
Farming (not fruit or poultry) and horse and stock rearing	185	2.3
Allotments, market gardening, fruit and poultry farming	30	0.4
Total	215	2.7
<u>Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)</u>	35	0.4
<u>Manufacture of bricks, pottery, glass, etc.</u>	-	-
<u>Manufacture of chemicals, dyes, explosives, paints, oils</u>		
Chemicals	10	0.1
Explosives	-	-
Paints, varnish, oils, grease	15	0.2
Miscellaneous	5	0.1
Total	30	0.4
<u>Manufacture of metals, machines, implements, conveyances</u>		
Smelting, converting, refining, rolling of iron, steel	-	-
Extracting, refining, smelting of other metals	-	-
Founding, other secondary processes in metal working	45	0.6
Engineering (not marine or electrical)	30	0.4
Electrical installations, cables and apparatus	10	0.1
Construction and repair of vehicles	40	0.5
Shipbuilding and repairing, marine engineering	10	0.1
Cutlery and small tools	-	-
Other metal industries	25	0.3
Total	160	2.0
<u>Manufacture of textiles and textile goods (not dress)</u>		
Cotton	5	0.1
Wool, worsted and shoddy	5	0.1
Silk, natural and artificial	-	-
Other or mixed fibres	45	0.6
Miscellaneous	25	0.3
Textile dyeing, printing, bleaching, finishing	5	0.1
Total	85	1.1

APPENDIX II (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Preparation of skins and leather and manufacture of goods of leather and leather substitute (not clothing or footwear)</u>	5	0.1
<u>Manufacture of clothing (not knitted) including footwear</u>	15	0.2
<u>Manufacture of food, drink, tobacco</u>		
Food	70	0.9
Drink	15	0.2
Tobacco, cigars, cigarettes, snuff	5	0.1
Total	90	1.1
<u>Woodworking: manufacture of cane and basket ware, furniture, fittings</u>	110	1.4
<u>Paper making: manufacture of stationery and stationery requisites, printing and bookbinding</u>	25	0.3
<u>Building, decorating, contracting; slate and stone cutting and dressing</u>	140	1.7
<u>Rubber and synthetic rubber</u>	-	-
<u>Other manufacturing industries</u>	10	0.1
<u>Gas, water, electricity, sewage</u>	15	0.2
<u>Transport and communication</u>		
Railway - stations, etc.	50	0.6
Road - garages, depots, etc.	80	1.0
Water - dock buildings other than warehouses	15	0.2
Air - aerodromes, etc.	-	-
Other communication (post, telephone, wireless)	15	0.2
Total	160	2.0
<u>Commerce</u>		
Departmental stores	5	0.1
Retail shops	370	4.6
Wholesale dealers	35	0.4
Dock and other warehouses	10	0.1
Total	420	5.2

APPENDIX II (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Offices, Government and other</u>		
Government departments	5	0.1
Local authorities	10	0.1
Other offices	-	-
Total	15	0.2
<u>Navy, Army and Air Force establishments</u>	15	0.2
<u>Fire Service establishments</u>	-	-
<u>Professional establishments (other than offices); public institutions</u>		
Educational establishments	35	0.4
Hospitals, homes, etc. for the care of the sick and infirm	45	0.6
Places of worship	20	0.2
Other public and professional services	35	0.4
Total	135	1.6
<u>Places of public entertainment</u>		
Cinemas and theatres	25	0.3
Other places of entertainment	50	0.6
Total	75	0.9
<u>Private residential and personal service (including hotels and catering)</u>		
Private residential houses	935	11.6
Private residential flats	1,780	22.1
Clubs, restaurants, public houses	175	2.2
Private huts, unoccupied houses, personal service	295	3.7
Total	3,185	39.5
<u>Miscellaneous</u>	240	3.0
<u>Undefined</u>	10	0.1
Total fires in buildings	5,190	64.4

APPENDIX II (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires other than those in buildings		
<u>Agriculture and forestry</u>		
Crops, standing or stooked (including hay fields)	50	0.6
Crops, ricks and stacks	275	3.4
Agricultural machinery	85	1.1
Agricultural waste	10	0.1
Other agricultural hazards	70	0.9
Allotments and gardens	25	0.3
Railway embankments	170	2.1
Grassland, heathland	620	7.7
Woods, forests, plantations	45	0.6
Single trees	55	0.7
Felled timber	—	—
Total	1,405	17.4
<u>Transport and communications</u>		
Aircraft	—	—
Railway rolling stock, etc.	35	0.4
Road vehicles - electrically driven	65	0.8
- oil, petrol or gas driven	480	6.0
- other	10	0.1
Water vessels - craft on inland waters	—	—
- ships in dock	10	0.1
- ships at sea	—	—
- marine structures	—	—
Total	600	7.4
<u>Outdoor storage</u>		
Chemicals, explosives, ammunition, oils, grease	40	0.5
Coal and coke	—	—
Refuse	250	3.1
Timber	65	0.8
Cotton, metal, packing materials, rubber etc.	100	1.2
Total	455	5.6
<u>Other outdoor structures</u>	410	5.1
Total fires other than those in buildings	2,870	35.6
Total fires attended	8,060	100.0

APPENDIX II (Contd.)

Table 3

SUPPOSED CAUSE OF FIRES

Reports from Scotland, 1953

Frequencies obtained by multiplying result of analysis
of a one-in-five sample of reports by five)

Each item in the list of supposed causes of fire given in this table represents a group of causes which have a common source of ignition. In some cases the groups have been divided into sub-groups according to the nature of the material first ignited and in others according to the act with the source of ignition which led to the outbreak of fire.

Supposed cause of fires	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Aircraft, crashed	-	-	-	-	-	-
Ashes	240	3.0	85	1.0	325	4.0
Brazier	5	0.1	15	0.2	20	0.2
Candle	30	0.4	-	-	30	0.4
Chimney on fire, not confined to chimney	575	7.1	-	-	575	7.1
Chimney sparks from (outside building)	30	0.4	10	0.1	40	0.5
Doubtful	-	-	-	-	-	-
Electric cooker	60	0.7	-	-	60	0.7
fire, heater, radiator	65	0.8	-	-	65	0.8
iron	60	0.7	-	-	60	0.7
Electric motor	45	0.6	15	0.2	60	0.7
refrigerator	115	1.4	-	-	115	1.4
television	-	-	-	-	-	-
wire and cable, lead to apparatus	10	0.1	10	0.1	20	0.2
wire and cable, other than lead to apparatus	255	3.2	205	2.5	460	5.7
wireless	55	0.7	-	-	55	0.7
Electric other apparatus	70	0.9	65	0.8	135	1.7
Explosives, fireworks	15	0.2	15	0.2	30	0.4
Fire in grate igniting bedding, clothing, linen	80	1.0	-	-	80	1.0
Fire in grate, igniting furniture and furnishings	140	1.7	-	-	140	1.7
Fire in grate igniting structural timber under hearth	125	1.6	-	-	125	1.6
Fire in grate igniting other materials	480	6.0	-	-	480	6.0
Fish frying range (all fuels)	40	0.5	10	0.1	50	0.6
Flue	115	1.4	-	-	115	1.4
Furnace (coal or coke)	5	0.1	-	-	5	0.1
Gas (coal) burner, jet, ring cooker	45	0.6	35	0.4	80	1.0
fire, heater, radiator	175	2.2	-	-	175	2.2
other apparatus	-	-	-	-	-	-
Incendiarism	50	0.6	5	0.1	55	0.7
	5	0.1	-	-	5	0.1

APPENDIX II (Contd.)

Table 3 (Contd.)

SUPPOSED CAUSE OF FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Supposed cause of fire	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Incubator brooder (all fuels)	65	0.8	-	-	65	0.8
Intentional burning of grassland, gorse, etc.	-	-	55	0.7	55	0.7
Lightning	25	0.3	5	0.1	30	0.4
Lime	-	-	5	0.1	5	0.1
Locomotives, sparks from	30	0.4	385	4.8	415	5.1
Matches	80	1.0	145	1.8	225	2.8
Matches, children playing with	205	2.5	425	5.3	630	7.8
Mechanical heat or sparks	50	0.6	45	0.6	95	1.2
Metal, hot	15	0.2	5	0.1	20	0.2
Oil, blowlamp	100	1.2	5	0.1	105	1.3
Oil, engine (including petrol)	35	0.4	145	1.8	180	2.2
lamp, stove	55	0.7	-	-	55	0.7
tractor	15	0.2	70	0.9	85	1.1
other apparatus	25	0.3	-	-	25	0.3
Oxyacetylene cutting and welding apparatus	25	0.3	30	0.4	55	0.7
Rubbish burning	50	0.6	165	2.0	215	2.7
Slow combustion stove igniting structural woodwork	40	0.5	-	-	40	0.5
Slow combustion stove igniting other material	75	0.9	650	0.9	140	1.7
Smoking materials	505	6.3	240	3.0	745	9.2
Spontaneous combustion in rubbish	-	-	-	-	-	-
Spontaneous combustion in other materials	5	0.1	5	0.1	10	0.1
Static electricity	5	0.1	-	-	5	0.1
Steam roller, engine, traction engine	10	0.1	-	-	10	0.1
Sun's rays	15	0.2	15	0.2	30	0.4
Taper, lighted paper or sticks	85	1.0	20	0.2	105	1.3
Taper, lighted paper or sticks, children playing with	35	0.4	25	0.3	60	0.7
Miscellaneous and undefined	300	3.7	215	2.7	515	6.4
Unknown source of ignition	450	5.6	330	4.1	780	9.7
Total number of fires	5,190	64.3	2,870	35.7	8,060	100.0

APPENDIX II (Contd.)

Table 4.4.

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of one-in-five sample of reports by five

Column No.	Hazard in which fire started	Supposed cause of fire
1	Agriculture	Ashes
2	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)	Brazier
3	Manufacture of bricks, pottery, glass, etc.	Candle
4	Manufacture of chemicals, explosives, paints, oils	Chimney on fire, not confined to chimney
5	Manufacture of metals, machines, implements, conveyances	Chimney, sparks from (outside building)
6	Manufacture of textiles and textile goods (not dress)	Doubtful
7	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather	Electric cooker
8	Manufacture of food, drink, tobacco	" fire, heater, radiator
9	Woodworking; manufacture of cane and basket ware, furniture, fittings	Electric iron motor
10	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding	" refrigerator
11	Building, decorating, contracting; slate and stone cutting and dressing	" television
12	Other manufacturing industries, including rubber and synthetic rubber	" wire and cable, other than lead to apparatus
13	Gas, water, electricity, sewage	Electric wire and apparatus
14	Transport and communication Commerce; retail shops, including departmental stores	Electric wireless
15	Commerce; wholesale dealers and warehouses	
16	Offices; Government and other	
17	Navy, Army, Air Force establishments	
18	Fire Service establishments	
19	Professional establishments (other than offices), public institutions	
20	Places of public entertainment	
21	Private residential houses	
22	Private residential flats	
23	Clubs, hotels, restaurants, public houses	
24	Private huts, unoccupied houses, personal service	
25	Miscellaneous and undefined	
26	Total	
27		

16	Electrical other apparatus	-	-	-	-	5	5	-	-	-	5	-	-	5	10	5	-	-	-	-	-	-	15	15	-	-	5	70	16	
17	Explosives, fireworks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	5	-	-	-	15	17	
18	Fire in grate igniting bedding, clothing, linen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	40	-	-	-	80	18	
19	Fire in grate igniting furniture and furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	70	-	-	5	140	19	
20	Fire in grate igniting structural timber under hearth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	95	-	-	-	125	20	
21	Fire in grate igniting other materials	-	-	-	-	5	-	-	5	10	-	10	-	-	-	5	-	5	-	-	-	-	135	295	10	-	-	480	21	
22	Fish frying range (all fuels)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	30	-	-	40	22	
23	Flue	-	5	-	5	15	-	-	5	10	-	-	-	-	5	5	-	-	-	-	-	10	20	10	15	10	-	115	23	
24	Furnace (coal or coke)	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	24	
25	Gas (coal) burner, jet, ring	-	-	-	5	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5	-	-	10	-	-	45	25	
26	Gas (coal) Cooker	-	-	-	-	-	-	-	-	-	5	-	-	-	-	10	-	-	-	-	-	-	-	20	120	20	-	-	175	26
27	" fire, heater, radiator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	
28	Gas (coal) other apparatus	-	-	-	-	5	-	-	15	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	10	-	-	50	28	
29	Incendiarism	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	29	
30	Incubator, brooder (all fuels)	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	-	10	-	65	30	
31	Intentional (burning of grassland, gorse etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	
32	Lightning	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	25	32	
33	Lime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	
34	Locomotives, sparks from	-	-	-	-	5	5	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	5	30	34	
35	Matches	-	-	-	-	5	10	5	-	-	-	5	-	-	5	-	-	-	-	-	-	-	5	30	-	5	10	80	35	
36	Matches, children playing with	15	-	-	-	5	-	-	-	-	-	10	-	-	5	25	5	-	-	-	-	20	-	-	15	-	10	95	205	36
37	Mechanical heat or sparks	-	-	-	-	-	30	-	5	-	-	-	-	5	5	5	-	-	-	-	-	-	-	-	-	-	-	50	37	
38	Metal, hot	-	-	-	-	10	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	38	
39	Oil, blow lamp	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	65	20	5	5	-	100	39	
40	" engine (including petrol)	5	-	-	-	-	-	-	-	10	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	15	-	35	40
Column No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

APPENDIX II (Contd.)

Table 4A (Contd.)

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Column No.	Hazard in which fire started
1	Agriculture
2	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)
3	Manufacture of bricks, pottery, glass, etc.
4	Manufacture of chemicals, explosives, paints, oils
5	Manufacture of metals, machines, implements, conveyances
6	Manufacture of textiles and textile goods (not dress)
7	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather
8	Manufacture of food, drink, tobacco
9	Woodworking; manufacture of cane and basket ware, furniture, fittings
10	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding
11	Building, decorating, contracting; slate and stone cutting and dressing
12	Other manufacturing industries, including rubber and synthetic rubber
13	Gas, water, electricity, sewage
14	Transport and communication
15	Commerce; retail shops, including departmental stores
16	Commerce; wholesale dealers and warehouses
17	Offices; Government and other
18	Navy, Army, Air Force establishments
19	Fire Service establishments
20	Professional establishments (other than offices), public institutions
21	Places of public entertainment
22	Private residential houses
23	Private residential flats
24	Clubs, hotels, restaurants, public houses
25	Private huts, unoccupied houses, personal service
26	Miscellaneous and undefined
27	Total

51	Static electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	51	
52	Steam roller, engine, traction engine	-	-	-	-	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	10	52
53	Sun's rays	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	-	-	-	-	-	15	53
54	Taper, lighted paper or sticks	-	-	-	-	5	-	5	-	5	-	5	-	-	-	20	-	5	-	-	5	5	25	5	-	-	85	54	
55	Taper, lighted paper or sticks, children playing with	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	10	-	-	20	35	55	
56	Miscellaneous and undefined	15	-	-	5	15	-	-	5	15	-	25	-	5	10	10	-	5	-	-	5	5	35	75	15	10	45	300	56
57	Unknown source of ignition	50	-	-	-	15	20	-	5	20	5	30	10	-	30	35	15	-	-	-	10	10	45	100	-	20	30	450	57
58	Total fires in buildings	215	35	-	30	160	85	20	90	110	25	140	10	15	160	375	45	15	15	-	135	75	935	1,780	175	295	250	5,190	58
Column No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

Table 4B

SUPPOSED CAUSE OF FIRES OTHER THAN THOSE IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

[illegible]

21	Incendiarism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	
22	Incubator, brooder (all fuels)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	
23	Intentional burning of grassland, gorse, etc.	5	-	-	-	-	-	40	10	-	-	-	-	-	-	-	-	-	-	-	-	55	23	
24	Lightning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	24	
25	Lime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5	25	
26	Locomotives, sparks from	45	-	-	10	5	150	90	-	-	-	-	10	-	-	-	-	-	-	5	10	60	385	26
27	Matches	15	-	-	5	5	5	45	5	-	-	-	-	5	-	-	-	-	40	-	10	10	145	27
28	Matches, children playing with	85	-	-	5	-	5	190	5	25	-	-	-	-	-	-	5	-	40	10	20	35	425	28
29	Mechanical heat or sparks	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	5	-	-	-	-	5	45	29
30	Metal, hot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	5	30
31	Oil, blow lamp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	31
32	" engine (including petrol)	-	5	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	5	145	32
33	" lamp, stove	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33
34	" tractor	5	60	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	70	34
35	" other apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35
36	Oxyacetylene cutting and welding apparatus	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	-	-	-	5	-	10	30	36
37	Rubbish burning	25	5	5	20	10	5	20	-	10	-	-	-	-	-	-	-	-	35	-	15	15	165	37
38	Slow combustion stove igniting structural woodwork	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38
39	Slow combustion other materials stove igniting	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5	-	-	-	-	55	65	39
40	Smoking materials	20	-	-	10	5	-	115	5	5	-	-	-	25	-	-	-	-	25	5	10	15	240	40
41	Spontaneous combustion in rubbish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
42	Spontaneous combustion in other materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	42
43	Static electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43
44	Steam roller, engine, traction engine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
45	Sun's rays	-	-	-	-	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	5	15	45
Column No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

APPENDIX II (Contd.)

Table 4B (Contd.)

SUPPOSED CAUSE OF FIRES OTHER THAN THOSE IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Row No.	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Row No.
	Hazard in which fire started Supposed cause of fire	Crops	Agricultural machinery	Agricultural waste	Agriculture, other	Gardens and allotments	Railway embankments	Grassland, heathland	Woods, forests, plantations	Single trees	Felled timber	Transport and communications				Outdoor storage				Miscellaneous outdoor structures	Total			
												Air	Rail	Road - oil, petrol or gas driven vehicles	Road - other vehicles	Water	Chemicals, explosives, ammunition, oils, grease	Coal and coke	Refuse			Timber	Other materials	
46	Taper, lighted paper or sticks	5	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	20	46
47	Taper, lighted paper or sticks, children playing with	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	5	10	25	47
48	Miscellaneous and undefined	40	-	-	10	-	5	50	5	5	-	-	15	20	-	-	5	-	15	15	-	30	215	48
49	Unknown source of ignition	65	-	-	10	-	-	55	10	5	-	-	5	45	-	-	5	-	60	15	25	30	330	49
50	Total fires other than those in buildings	325	85	10	70	25	170	620	45	55	-	-	35	480	75	10	40	-	250	65	100	410	2,870	50
	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

APPENDIX II (Contd.)

Table 5

MATERIAL FIRST IGNITED IN FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of one-in-five sample of reports by five)

Material first ignited	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
<u>Agriculture and Forestry</u>						
Crops, ricks, stacks						
Barley	-	-	40	0.5	40	0.5
Hay	10	0.1	70	0.9	80	1.0
Straw	15	0.2	65	0.8	80	1.0
Stubble	-	-	10	0.1	10	0.1
Other	-	-	30	0.4	30	0.4
Loose straw or hay	105	1.3	85	1.1	190	2.4
Grass, heather, bracken	5	0.1	605	7.5	610	7.6
Trees, hedges, undergrowth	-	-	280	3.5	280	3.5
brushwood, bushes, (including gorse), twigs, touchwood						
Other agricultural materials	-	-	25	0.3	25	0.3
Total	135	1.7	1,210	15.0	1,345	16.7
<u>Chemicals - gases</u>						
Acetylene	15	0.2	10	0.1	25	0.3
Coal gas	170	2.1	35	0.4	205	2.5
Other gases	25	0.3	5	0.1	30	0.4
Total	210	2.6	50	0.6	260	3.2
<u>Chemicals - oils</u>						
Animal and vegetable oils	-	-	-	-	-	-
Mineral oil						
Paraffin	30	0.4	20	0.2	50	0.6
Petrol in vehicles	65	0.8	225	2.8	290	3.6
Petrol not in vehicles	40	0.5	15	0.2	55	0.7
Other mineral oils	20	0.2	5	0.1	25	0.3
Oil, waste and undefined	25	0.3	45	0.6	70	0.9
Total	180	2.2	310	3.8	490	6.1
<u>Chemicals - other</u>						
Celluloid (including films)	5	0.1	-	-	5	0.1
Paint, enamel, lacquer, varnish, stains and French polish	15	0.2	-	-	15	0.2
Pitch, tar	15	0.2	20	0.2	35	0.4
Rubber, vulcanite, ebonite	30	0.4	20	0.2	50	0.6
Other chemicals	60	0.7	35	0.4	95	1.2
Total	125	1.6	75	0.9	200	2.5
<u>Paper, cardboard, wood (not part of a structure)</u>						
Paper, cardboard	205	2.5	70	0.9	275	3.4
Wood chippings, flour, sawdust, shavings, wool	85	1.1	25	0.3	110	1.4
Wood barrels, boxes, cases, firewood etc.	120	1.5	20	0.2	140	1.7
Timber	5	0.1	25	0.3	30	0.4
Total	415	5.1	140	1.7	555	6.9

APPENDIX II (Contd.)

Table 5 (Contd.)

MATERIAL FIRST IGNITED IN FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of one-in-five sample of reports by five)

Material first ignited	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
<u>Textiles</u>						
Canvas and canvas goods	5	0.1	5	0.1	10	0.1
Clothing on person	5	0.1	-	-	5	0.1
Clothing not on person	140	1.7	-	-	140	1.7
Cotton	5	0.1	5	0.1	10	0.1
Jute, hessian, sacking	45	0.6	35	0.4	80	1.0
Rags (including oily rags)	25	0.3	-	-	25	0.3
Tarpaulin, waterproof sheeting, oilskins	5	0.1	25	0.3	30	0.4
Other textiles	30	0.4	10	0.1	40	0.5
Total	260	3.2	80	1.1	340	4.2
<u>Furniture, furnishings, household goods</u>						
Bedding	95	1.2	10	0.1	105	1.3
Carpets, rugs	50	0.6	-	-	50	0.6
Curtains	60	0.7	-	-	60	0.7
Furniture	290	3.6	-	-	290	3.6
Linen articles (unspecified) laundry	30	0.4	-	-	30	0.4
Seating in vehicles	5	0.1	25	0.3	30	0.4
Other furnishings	80	1.0	5	0.1	85	1.1
Total	610	7.6	40	0.5	650	8.1
<u>Building materials, structural woodwork</u>						
Building materials other than wood	60	0.7	-	-	60	0.7
Structural woodwork	-	-	145	1.8	1,485	18.4
External	85	1.1				
Internal						
Door, window frame	95	1.2				
Floor, stairs	415	5.1				
Partitions, linings to walls	155	1.9				
Roof	185	2.3				
Timber in chimney, flue	85	1.1				
Timber under hearth	135	1.7				
Other fittings	185	2.3				
Total	1,400	17.4	145	1.8	1,545	19.2
<u>Miscellaneous</u>						
Coal, coke	-	-	-	-	-	-
Electrical insulation	310	3.8	210	2.6	520	6.5
Fat (margarine, suet, butter, cooking fat, lard)	185	2.3	5	0.1	190	2.4
Food other than fat	95	1.2	-	-	95	1.2
Refuse, rubbish, debris	435	5.4	275	3.4	710	8.8
Soot	65	0.8	-	-	65	0.8
Other	385	4.8	105	1.3	490	6.1
<u>Unknown</u>	380	4.7	225	2.8	605	7.5
Total number of fires	5,190	64.3	2,870	35.7	8,060	100.0

APPENDIX II (Contd.)

Table 6

METHOD OF EXTINCTION OF FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Row No.	Method of extinction	Fires in buildings						Fires other than those in buildings						Total No. of fires		Row No.
		Extinguished by Fire Brigade		Extinguished before arrival of Fire Brigade		Total		Extinguished by Fire Brigade...		Extinguished before arrival of Fire Brigade.		Total				
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
1	Burned out	-	-	15	0.2	15	0.2	-	-	55	0.7	55	0.7	70	0.9	1
2	Removal	400	5.0	70	0.9	470	5.8	60	0.7	10	0.1	70	0.9	540	6.7	2
3	Automatic sprinkler system	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	Beating	10	0.1	-	-	10	0.1	365	4.5	55	0.7	420	5.2	430	5.3	4
5	Smothering	35	0.4	45	0.6	80	1.0	5	0.1	-	-	5	0.1	85	1.1	5
6	Sand, earth, etc.	5	0.1	10	0.1	15	0.2	20	0.2	15	0.2	35	0.4	50	0.6	6
7	Water from buckets	155	1.9	230	2.9	385	4.8	10	0.1	30	0.4	40	0.5	425	5.3	7
8	Water from stirrup or hand pumps	1,045	13.0	-	-	1,045	13.0	65	0.8	5	0.1	70	0.9	1,115	13.8	8
9	Chemicals and chemical extinguishers	175	2.2	80	1.0	255	3.2	175	2.2	60	0.7	235	2.9	490	6.1	9
10	Two or more methods 4-9	30	0.4	25	0.3	55	0.7	40	0.5	50	0.6	90	1.1	145	1.8	10
11	Water from garden hose, etc.	-	-	10	0.1	10	0.1	-	-	-	-	-	-	10	0.1	11
12	Hose reel jets (using water in tank only)	1,590	19.7	-	-	1,590	19.7	940	11.7	-	-	940	11.7	2,530	31.4	12
13	Hose reel jets (using more water than that in tank)	315	3.9	-	-	315	3.9	105	1.3	-	-	105	1.3	420	5.2	13
14	Jets from inside hose reel or inside hydrant	20	0.2	-	-	20	0.2	-	-	-	-	-	-	20	0.2	14
15	Hose reel jets and jets from inside hose reel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
16	Jets from pumps and hydrants	840	10.4	-	-	840	10.4	760	9.4	-	-	760	9.4	1,600	19.9	16
17	Other and undefined methods	60	0.7	25	0.3	85	1.0	15	0.2	30	0.4	45	0.6	130	1.6	17
18	Total	4,680	58.0	510	6.3	5,190	64.3	2,560	31.8	310	3.8	2,870	35.7	8,060	100.0	18

Notes on methods of extinction

1. "Removal" includes occurrences where (a) burning material was removed from the building, (b) gas supply was turned off. If the burning material was tackled with methods 3-11 before removing it from the building, then such occurrences were classified under whichever of these methods applied.

2. Methods 11-15 and method 16 include those occurrences in which methods 3-10 and 3-15 respectively may also have been used.

3. "Fires extinguished by Fire Brigade" include those fires which were tackled but not extinguished before the arrival of the Fire Brigade.

APPENDIX II (Contd.)

Table 7

BEHAVIOUR OF SPRINKLER SYSTEMS AT FIRES

Reports from Scotland, 1953

(Frequencies observed in the analysis of a one-in-five sample of reports)

Note: These figures are not on a comparable basis with those in tables 1-6 or tables 8-10

Behaviour of sprinklers	Incidents in which the following number of heads were actuated						Total number of incidents
	Nil	1-5	6-10	11-20	More than 20	Number not reported	
Installed but did not operate							
(i) because insufficient heat was generated by the fire	5	-	-	-	-	-	5
(ii) because the heat did not reach the heads	2	-	-	-	-	-	2
Total	7	-	-	-	-	-	7
Controlled but did not extinguish the fire	-	2	1	-	-	-	3
Number of calls to fires where sprinkler systems were installed	7	2	1	-	-	-	10

APPENDIX II (Contd.)

Table 8

ATTENDANCE OF SPECIAL APPLIANCES AT FIRES

Reports from Scotland, 1953

(Frequencies obtained by multiplying results of analysis
of a one-in-five sample of reports by five)

Attendance	No. of * occasions	Percentage of total no. of fires
Emergency tenders	140	1.7
Escape carrying units and escape carriers	20	0.2
Fire boats	40	0.5
Foam tenders	65	0.8
Hose laying lorries and hose carriers	50	0.6
Pump escapes	3,860	47.9
Pumps	6,315	78.3
Pump salvage tenders	280	3.5
Salvage tenders	205	2.5
Turntable ladders (hand operated)	180	2.2
Turntable ladders (mechanical)	1,370	17.0
Utility vans	185	2.3
Water tenders	870	10.8
Wireless cars	140	1.7

* The number of occasions on which fires were attended by one
or more of the different special appliances is given.

APPENDIX II (Contd.)

Table 9

PERSONS RESCUED OR ESCAPED BY EMERGENCY MEANS FROM FIRES

Reports from Scotland, 1953

(Frequencies obtained from results of analysis of all reports)

Appliance or method used	Number of persons
Rescue with Fire Brigade assistance from Buildings	
Escape (hand operated)	3
Ladder, extension	7
turntable (mechanical)	9
Other apparatus	8
Without apparatus	23
Total	50
Rescue without Fire Brigade assistance from Buildings	
Carried or assisted out	32
Jumping sheet	3
Ladder	5
Lowered from windows, roof, etc.	5
Other or undefined methods	1
Road vehicles	3
Total	49
Escape by emergency means from Buildings	
Jumping from upstairs window, roof	8
Through ground floor windows	4
Other or undefined methods	1
Total	13
Total persons rescued or escaped	112

APPENDIX II (Contd.)

Table 10

NATURE OF INJURIES OF CASUALTIES IN FIRES

Reports from Scotland, 1953

(Frequencies obtained from results of analysis of all reports)

* Casualties who suffered shock in addition to another injury have been classified according to the nature of the other injury.

Nature of injury	Fire Brigade	Other Casualties	Total
Fatal casualties			
Burns and scalds	-	36	36
Overcome by gas or smoke	-	9	9
Other and undefined injuries	-	1	1
Total	-	46	46
Non-fatal casualties			
Burns and scalds	15	170	185
Bruises, cuts, abrasions	43	31	74
Dislocations, sprains, fractures	3	1	4
Overcome by gas or smoke	4	6	10
More than one of above injuries	3	8	11
* shock	-	26	26
Other and undefined injuries	10	6	16
Total	78	248	326
Total casualties	78	294	372

APPENDIX III

STATISTICAL TABLES FOR FIRE BRIGADES IN NORTHERN IRELAND, 1953

Table 1

METHOD OF CALLING FIRE BRIGADES TO FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of all reports by five)

Method of calling	Fire Brigade			Total		
	North	South	West	Belfast	No.	Per cent
By Special Fire Service methods						
Automatic fire alarm	-	-	-	-	-	-
Fire and police pillar box	-	-	-	-	-	-
Police telephone	-	-	5	10	15	1.2
Private fire telephone	-	-	10	-	10	0.8
Street fire alarm	-	-	-	20	20	1.6
Total	-	-	15	30	45	3.5
Exchange Telephone	205	470	210	315	1,200	93.0
Running call	-	10	-	25	35	2.7
Late call	-	5	-	-	5	0.4
Other and undefined methods	-	-	5	-	5	0.4
Total fires	205	485	230	370	1,290	100.0

APPENDIX III (Contd.)

Table 2

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying the results of analysis of one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on		
<u>Agriculture</u>		
Farming (not fruit or poultry) and horse and stock rearing	115	8.9
Allotments, market gardening, fruit and poultry farming	5	0.4
Total	120	9.3
<u>Mining quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)</u>	-	-
<u>Manufacture of bricks, pottery, glass, etc.</u>	-	-
<u>Manufacture of chemicals, dyes, explosives, paints, oils</u>		
Chemicals	-	-
Explosives	-	-
Paints, varnish, oils, grease	-	-
Miscellaneous	-	-
Total		
<u>Manufacture of metals, machines, implements, conveyances</u>		
Smelting, converting, refining, rolling of iron, steel	-	-
Extracting, refining, smelting of other metals	-	-
Founding, other secondary processes in metal working	5	0.4
Engineering (not marine or electrical)	-	-
Electrical installations, cables and apparatus	-	-
Construction and repair of vehicles	-	-
Shipbuilding and repairing, marine engineering	-	-
Cutlery and small tools	-	-
Other metal industries	5	0.4
Total	10	0.8
<u>Manufacture of textiles and textile goods (not dress)</u>		
Cotton	-	-
Wool, worsted and shoddy	-	-
Silk, natural and artificial	-	-
Other or mixed fibres	20	1.6
Miscellaneous	5	0.4
Textile dyeing, printing, bleaching, finishing	5	0.4
Total	30	2.3

APPENDIX III (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying the results of analysis of one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent.
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Preparation of skins and leather and manufacture of goods of leather and leather substitute (not clothing or footwear)</u>	-	-
<u>Manufacture of clothing (not knitted) including footwear</u>	-	-
<u>Manufacture of food, drink, tobacco</u>		
Food	10	0.8
Drink	-	-
Tobacco, cigars, cigarettes, snuff	-	-
Total	10	0.8
<u>Woodworking: manufacture of cane and basket ware, furniture, fittings</u>		
Woodworking and basket ware	-	-
Furniture (not metal or basket)	-	-
Fittings	5	0.4
Total	5	0.4
<u>Paper making: manufacture of stationery and stationery requisites, printing and bookbinding</u>	-	-
<u>Building, decorating, contracting: slate and stone cutting and dressing</u>	20	1.6
<u>Rubber and synthetic rubber</u>	-	-
<u>Other manufacturing industries</u>	5	0.4
<u>Gas, water, electricity, sewage</u>	-	-
<u>Transport and communication</u>		
Railway - stations, etc.	10	0.8
Road - garages, depots, etc.	10	0.8
Water - dock buildings other than warehouses	-	-
Air - aerodromes etc.	-	-
Other communication (post, telephone, wireless)	-	-
Total	20	1.6
<u>Commerce</u>		
Departmental stores	-	-
Retail shops	40	3.1
Wholesale dealers	5	0.4
Dock and other warehouses	5	0.4
Total	50	3.9

APPENDIX III (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying the results of analysis of one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires in buildings classified according to trade or business carried on (contd.)		
<u>Offices, Government and other</u>		
Government departments	-	-
Local authorities	-	-
Other offices	-	-
Total	-	-
<u>Navy, Army and Air Force establishments</u>	5	0.4
<u>Fire Service establishments</u>	-	-
<u>Professional establishments (other than offices): public institution</u>		
Educational establishments	20	1.6
Hospitals, homes etc. for care of the sick and infirm	10	0.8
Places of worship	5	0.4
Other public and professional services	10	0.8
Total	45	3.5
<u>Places of public entertainment</u>		
Cinemas and theatres	-	-
Other places of entertainment	10	0.8
Total	10	0.8
<u>Private residential and personal service (including hotels and catering)</u>		
Private residential houses	275	21.3
Private residential flats	10	0.8
Clubs, restaurants, public houses	45	3.5
Private huts, unoccupied houses, personal service	40	3.1
Total	370	28.7
<u>Miscellaneous</u>	20	1.6
<u>Undefined</u>	-	-
Total fires in buildings	720	55.8

APPENDIX III (Contd.)

Table 2 (Contd.)

FIRES CLASSIFIED ACCORDING TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying the results of analysis of one-in-five sample of reports by five)

Hazard	Total	
	No.	Per cent
Fires other than those in buildings		
<u>Agriculture and forestry</u>		
Crops, standing or stocked (including hay fields)	-	-
Crops, ricks and stacks	65	5.0
Agricultural machinery	20	1.6
Agricultural waste	-	-
Other agricultural hazards	-	-
Allotments and gardens	-	-
Railway embankments	-	-
Grassland, heathland	195	15.1
Woods, forests, plantations	5	0.4
Single trees	10	0.8
Felled timber	-	-
Total	295	22.9
<u>Transport and communication</u>		
Aircraft	-	-
Railway rolling stock, etc.	-	-
Road vehicles - electrically driven	15	1.2
- oil, petrol, or gas driven	120	9.3
Road vehicles - other	-	-
Water vessels - craft on inland waters	-	-
- ships in dock	5	0.4
- ships at sea	-	-
- marine structures	-	-
Total	140	10.9
<u>Outdoor storage</u>		
Chemicals, explosives, ammunition, oils, grease	-	-
Coal and coke	-	-
Refuse	30	2.3
Timber	-	-
Cotton, metal, packing materials, rubber etc.	15	1.2
Total	45	3.5
<u>Other outdoor structures</u>	90	7.0
Total fires other than those in buildings	570	44.2
Total fires attended	1,290	100.0

APPENDIX III (Contd.)

Table 3

SUPPOSED CAUSE OF FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Each item in the list of supposed causes of fire given in the table represents a group of causes which have a common source of ignition. In some cases the groups have been divided into sub-groups according to the nature of the material first ignited, and in others according to the act with the source of ignition which lead to the outbreak of fire.

Supposed cause of fire	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Aircraft, crashed	5-	-	-	-	-	-
Ashes	5	0.4	15	1.2	20	1.6
Brazier	-	-	10	0.8	10	0.8
Candle	5	0.4	-	-	5	0.4
Chimney on fire, not confined to chimney	35	2.7	-	-	35	2.7
Chimney, sparks from (outside building)	20	1.6	10	0.8	30	2.3
Doubtful	5	0.4	-	-	5	0.4
Electric cooker	-	-	-	-	-	-
fire, heater, radiator	5	0.4	-	-	5	0.4
iron	10	0.8	-	-	10	0.8
Electric motor	10	0.8	-	-	10	0.8
refrigerator	-	-	-	-	-	-
television	-	-	-	-	-	-
wire and cable, lead to apparatus	-	-	5	0.4	5	0.4
wire and cable, other than lead to apparatus	45	3.5	55	4.3	100	7.8
wireless	-	-	-	-	-	-
Electric other apparatus	20	1.6	15	1.2	35	2.7
Explosives, fireworks	10	0.8	5	0.4	15	1.2
Fire in grate, igniting bedding, clothing, linen	5	0.4	-	-	5	0.4
Fire in grate igniting furniture and furnishings	15	1.2	-	-	15	1.2
Fire in grate igniting structural timber under hearth	10	0.8	-	-	10	0.8
Fire in grate igniting other materials	65	5.0	-	-	65	5.0
Fish frying range (all fuels)	30	2.3	-	-	30	2.3
Flue	25	1.9	-	-	25	1.9
Furnace (coal or coke)	5	0.4	-	-	5	0.4
Gas (coal) burner, jet, ring	-	-	-	-	-	-
cooker	5	0.4	-	-	5	0.4
fire, heater, radiator	-	-	-	-	-	-
other apparatus	5	0.4	-	-	5	0.4
Incendiarism	-	-	-	-	-	-

APPENDIX III (Contd.)

Table 3 (Contd.)

SUPPOSED CAUSE OF FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Supposed cause of fire	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Incubator, brooder (all fuels)	30	2.3	-	-	30	2.3
Intentional burning of grassland, gorse, etc.	-	-	-	-	-	-
Lightning	-	-	5	0.4	5	0.4
Lime	-	-	-	-	-	-
Locomotives, sparks from	10	0.8	-	-	10	0.8
Matches	5	0.4	-	-	5	0.4
Matches, children playing with	15	1.2	25	1.9	40	3.1
Mechanical heat or sparks	15	1.2	-	-	15	1.2
Metal, hot	-	-	-	-	-	-
Oil blowlamp	5	0.4	-	-	5	0.4
Oil engine (including petrol)	5	0.4	45	3.5	50	3.9
lamp, stove	15	1.2	-	-	15	1.2
tractor	5	0.4	10	0.8	15	1.2
other apparatus	-	-	-	-	-	-
Oxyacetylene cutting and welding apparatus	-	-	-	-	-	-
Rubbish burning	5	0.4	15	1.2	20	1.6
Slow combustion stove igniting structural woodwork	10	0.8	-	-	10	0.8
Slow combustion stove igniting other materials	10	0.8	15	1.2	25	1.9
Smoking materials	60	4.7	60	4.7	120	9.3
Spontaneous combustion in rubbish	-	-	-	-	-	-
Spontaneous combustion in other materials	-	-	-	-	-	-
Static electricity	-	-	-	-	-	-
Steam roller, engine, traction engine	-	-	5	0.4	5	0.4
Sun's rays	5	0.4	-	-	5	0.4
Taper, lighted paper or sticks	-	-	10	0.8	10	0.8
Taper, lighted paper or sticks, children playing with	-	-	-	-	-	-
Miscellaneous and undefined	30	2.3	30	2.3	60	4.7
Unknown source of ignition	160	12.4	235	18.2	395	30.6
Total number of fires	720	55.8	570	44.2	1,290	100.0

Table 4A

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-fifth sample of reports by five)

Column No.	Hazard in which fire started	Row No.
1	Agriculture	1
2	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)	2
3	Manufacture of bricks, pottery, glass, etc.	3
4	Manufacture of chemicals, explosives, paints, oils	4
5	Manufacture of metals, machines, implements, conveyances	5
6	Manufacture of textiles and textile goods (not dress)	6
7	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather	7
8	Manufacture of food, drink, tobacco	8
9	Woodworking; manufacture of cane and basket ware, furniture, fittings	9
10	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding	10
11	Building, decorating, contracting; slate and stone cutting and dressing	11
12	Other manufacturing industries, including rubber and synthetic rubber	12
13	Gas, water, electricity, sewage	13
14	Transport and communication	14
15	Commerce; retail shops, including departmental stores	15
16	Commerce; wholesale dealers and warehouses	16
17	Offices; Government and other	17
18	Navy, Army, Air Force establishments	18
19	Fire Service establishments	19
20	Professional establishments (other than offices), public institutions	20
21	Places of public entertainment	21
22	Private residential houses	22
23	Private residential flats	23
24	Clubs, hotels, restaurants, public houses	24
25	Private huts, unoccupied houses, personal service	25
26	Miscellaneous and undefined	26
27	Total	27

APPENDIX III (Contd.)

Table 4A (Contd.)

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Row No.	Column No.	Hazard in which fire started	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	Row No.
		Supposed cause of fire	Agriculture	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)	Manufacture of bricks, pottery, glass etc.	Manufacture of chemicals, explosives, paints, oils	Manufacture of metals, machines, implements, conveyances	Manufacture of textiles and textile goods (not dress)	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather	Manufacture of food, drink, tobacco	Woodworking; manufacture of cane and basket ware, furniture, fittings	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding	Building, decorating, contracting; slate and stone cutting and dressing	Other manufacturing industries, including rubber and synthetic rubber	Gas, water, electricity, sewage	Transport and communication	Commerce; retail shops, including departmental stores	Commerce; wholesale dealers and warehouses	Offices; Government and other	Navy, Army, Air Force establishments	Fire Service establishments	Professional establishments (other than offices), public institutions	Places of public entertainment	Private residential houses	Private residential flats	Clubs, hotels, restaurants, public houses	Private huts, unoccupied houses, personal service	Miscellaneous and undefined		
11		Electric refrigerator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
12		" television	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
13		" wire and cable, other than lead to apparatus	-	-	-	-	-	5	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	45	13
14		Electric wire and cable, lead to apparatus	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
15		Electric wireless	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
16		Electric other apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
17		Explosives, fireworks	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
18		Fire in grate igniting bedding, clothing, linen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
19		Fire in grate, igniting furniture and furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
20		Fire in grate igniting structural timber under hearth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10

21	Fire grate igniting other materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	5	5	-	-	65	21		
22	Fish frying range (all fuels)	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	5	-	-	-	-	-	20	-	-	30	22		
23	Flue	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	5	10	-	-	-	25	23		
24	Furnace (coal or coke)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	24		
25	Gas (coal) burner, jet, ring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	
26	Gas (coal) cooker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5	26	
27	" fire, heater, radiator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	
28	Gas (coal) other apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	5	28	
29	Incendiarism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	
30	Incubator, brooder (all fuels)	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	30	
31	Intentional burning of grassland, gorse, etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	
32	Lightning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	
33	Lime	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	
34	Locomotives, sparks from	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5	-	-	-	-	10	-	34	
35	Matches	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5	35	
36	Matches, children playing with	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5	-	15	36	
37	Mechanical heat or sparks	-	-	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	37	
38	Metal, hot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	
39	Oil blow lamp	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	39	
40	" engine (including petrol)	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	40	
41	Oil lamp, stove	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	15	41	
42	" tractor	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	42	
43	" other apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	
44	Oxyacetylene cutting and welding apparatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	
45	Rubbish burning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5	-	45	
46	Slow combustion stove igniting structural woodwork	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	10	46	
47	Slow combustion stove igniting other structural materials	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	10	-	47	
48	Smoking materials	10	-	-	-	-	-	-	-	-	-	5	-	-	5	-	-	-	-	-	5	-	25	-	5	5	-	60	48
49	Spontaneous combustion in rubbish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49
50	Spontaneous combustion in other materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
Column No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

APPENDIX III (Contd.)

Table 4A

SUPPOSED CAUSE OF FIRES IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED
 Reports from Northern Ireland, 1953
 (Frequencies obtained by multiplying results of analysis of one-fifth sample of reports by five)

Row No.	Column No.	Hazard in which fire started	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Row No.
			Agriculture	Mining, quarrying and treatment of non-metalliferous mine and quarry products (excluding gas works)	Manufacture of bricks, pottery, glass, etc.	Manufacture of chemicals, explosives, paints, oils	Manufacture of metals, machines, implements, conveyances	Manufacture of textiles and textile goods (not dress)	Manufacture of clothing (not knitted) including footwear, and goods of leather and leather substitute; preparation of skins and leather	Manufacture of food, drink, tobacco	Woodworking; manufacture of cane and basket ware, furniture, fittings	Paper making; manufacture of stationery and stationery requisites, printing and bookbinding	Building, decorating, contracting; slate and stone cutting and dressing	Other manufacturing industries, including rubber and synthetic rubber	Gas, water, electricity, sewage	Transport and communication	Commerce; retail shops, including departmental stores	Commerce; wholesale dealers and warehouses	Offices; Government and other	Navy, Army, Air Force establishments	Fire Service establishments	Professional establishments (other than offices), public institutions	Places of public entertainment	Private residential houses	Private residential flats	Clubs, hotels, restaurants, public houses	Private huts, unoccupied houses, personal service	Miscellaneous and undefined	Total	
51		Static electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51
52		Steam roller, engine, traction engine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52
53		Sun's rays	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53
54		Taper, lighted paper or sticks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54
55		Taper, lighted paper or sticks, children playing with	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55
56		Miscellaneous and undefined	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56
57		Unknown source of ignition	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57
58		Total fires in buildings	120	-	-	-	10	30	-	10	5	-	20	5	-	20	40	10	-	5	-	45	10	275	10	45	40	20	720	58
	Column No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

APPENDIX III (Contd.)

Table /B

SUPPOSED CAUSE OF FIRES OTHER THAN THOSE IN BUILDINGS IN RELATION TO HAZARD IN WHICH FIRE STARTED

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Row No.	Supposed cause of fire	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Row No.
		Hazard in which fire started	Crops	Agricultural machinery	Agricultural waste	Agriculture, other	Gardens and allotments	Railway embankments	Grassland, heathland	Woods, forests, plantations	Single trees	Felled timber	Air	Rail	Road - oil, petrol or gas driven vehicles	Road - other vehicles	Water	Chemicals, explosives, ammunition, oils, grease	Coal and coke	Refuse	Timber	Other materials	Miscellaneous outdoor structures	Total	
1	Aircraft, crashed		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Ashes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3	Brazier		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
4	Candle		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4
5	Chimney on fire, not confined to chimney		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
6	Chimney, sparks from (outside building)		5	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6
7	Doubtful		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7
8	Electric cooker		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8
9	" fire, heater, radiator		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9
10	" motor		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
11	" refrigerator		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11
12	" wire and cable, other than lead to apparatus		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12
13	" wire and cable, lead to apparatus		1	1	1	1	1	1	1	1	1	1	1	1	35	5	1	1	1	1	1	1	15	55	12
14	" other apparatus		1	5	1	1	1	1	1	1	1	1	1	1	5	5	1	1	1	1	1	1	5	15	13
15	Explosives, fireworks		1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	5	5	14
		Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	15

Table 4B (Contd.)

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

[illegible]

APPENDIX III (Contd.)

Table 5 (Contd.)

MATERIAL FIRST IGNITED IN FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Material first ignited	Fires in buildings		Fires other than those in buildings		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
<u>Textiles</u>						
Canvas and canvas goods	-	-	10	0.8	10	0.8
Clothing on person	-	-	-	-	-	-
Clothing not on person	15	1.2	-	-	15	1.2
Cotton	-	-	-	-	-	-
Jute, hessian, sacking	5	0.4	-	-	5	0.4
Rags, (including oily rags)	5	0.4	5	0.4	10	0.8
Tarpaulin, waterproof sheeting, oilskins	-	-	5	0.4	5	0.4
Other textiles	-	-	-	-	-	-
Total	25	1.9	20	1.6	45	3.5
<u>Furniture, furnishings, household goods</u>						
Bedding	25	1.9	-	-	25	1.9
Carpets, rugs	-	-	-	-	-	-
Curtains	-	-	-	-	-	-
Furniture	25	1.9	5	0.4	30	2.3
Linen articles (unspecified), laundry	5	0.4	-	-	5	0.4
Seating in vehicles	-	-	-	-	-	-
Other furnishings	10	0.8	-	-	10	0.8
Total	65	5.0	5	0.4	70	5.4
<u>Building materials, structural</u>						
<u>woodwork</u>						
Building materials other than wood	60	4.7	-	-	60	4.7
Structural woodwork	-	-	15	1.2	120	9.3
External	10	0.8	-	-	-	-
Internal	-	-	-	-	-	-
Door, window frame	-	-	-	-	-	-
Floor, stairs	40	3.1	-	-	-	-
Partitions, linings to walls	15	1.2	-	-	-	-
Roof	20	1.6	-	-	-	-
Timber in chimney, flue	-	-	-	-	-	-
Timber under hearth	10	0.8	-	-	-	-
Other fittings	10	0.8	-	-	-	-
Total	165	12.8	15	1.2	180	14.0
<u>Miscellaneous</u>						
Coal, coke	-	-	-	-	-	-
Electrical insulation	20	1.6	55	4.3	75	5.8
Fat (margarine, suet, butter, cooking fat and lard)	40	3.1	-	-	40	3.1
Food other than fat	-	-	-	-	-	-
Refuse, rubbish, debris	5	0.4	20	1.6	25	1.9
Soot	-	-	-	-	-	-
Other	55	4.3	15	1.2	70	5.4
<u>Unknown</u>	160	12.4	225	17.4	385	29.8
Total number of fires	720	55.8	570	44.2	1,290	100.0

APPENDIX III (Contd.)

Table 6

METHOD OF EXTINCTION OF FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of one-in-five sample of reports by five)

Row No.	Method of extinction	Fires in buildings						Fires other than those in buildings						Total No. of fires		Row No.
		Extinguished by Fire Brigade		Extinguished before arrival of Fire Brigade		Total		Extinguished by Fire Brigade		Extinguished before arrival of Fire Brigade		Total				
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
1	Burned out	-	-	-	-	-	-	-	-	25	1.9	25	1.9	25	1.9	1
2	Removal	45	3.5	5	0.4	50	3.9	5	0.4	10	0.8	15	1.2	65	5.0	2
3	Beating	5	0.4	-	-	5	0.4	110	8.5	35	2.7	145	11.2	150	11.6	3
4	Smothering	5	0.4	10	0.8	15	1.2	-	-	5	0.4	5	0.4	20	1.6	4
5	Water from buckets	20	1.6	45	3.5	65	5.0	-	-	20	1.6	20	1.6	85	6.6	5
6	Water from stirrup or hand pumps	80	6.2	-	-	80	6.2	10	0.8	-	-	10	0.8	90	7.0	6
7	Chemicals and chemical extinguishers	10	0.8	10	0.8	20	1.6	25	1.9	10	0.8	35	2.7	55	4.3	7
8	Two or more methods 3-7	10	0.8	10	0.8	20	1.6	15	1.2	5	0.4	20	1.6	40	3.1	8
9	Hose reel jets (using water in tank only)	155	12.0	-	-	155	12.0	145	11.2	-	-	145	11.2	300	23.3	9
10	Hose reel jets (using more water than that in tank)	90	7.0	-	-	90	7.0	15	1.2	-	-	15	1.2	105	8.1	10
11	Jets from pumps and hydrants	220	17.1	-	-	220	17.1	125	9.7	-	-	125	9.7	345	26.7	11
12	Other and undefined methods	-	-	-	-	-	-	5	0.4	5	0.4	10	0.8	10	0.8	12
	Total	640	49.6	80	6.2	720	55.8	455	35.3	115	8.9	570	44.2	1,290	100.0	

Notes on method of extinction

1. "Removal" includes occurrences where (a) burning material was removed from the building, (b) gas supply was turned off. If the burning material was tackled with methods 3-8 before removing it from the building, then such occurrences were classified under whichever of these methods applied.
2. Methods 9 & 10 and method 11 include those occurrences in which methods 3-8 and 3-10 respectively may also have been used.
3. "Fires extinguished by Fire Brigade" include those fires which were tackled but not extinguished before the arrival of the Fire Brigade.

APPENDIX III (Contd.)

Table 7

BEHAVIOUR OF SPRINKLER SYSTEMS AT FIRES

Reports from Northern Ireland, 1953

In the one-in-five sample of reports there were no incidents in which sprinklers were reported as being installed.

APPENDIX III (Contd.)

Table 8

ATTENDANCE OF SPECIAL APPLIANCES AT FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained by multiplying results of analysis of a one-in-five sample of reports by five)

Attendance	No of [#] occasions	Percentage of total no. of fires
Emergency tenders	115	8.9
Escape carrying units and escape carriers	55	4.3
Foam tenders	5	0.4
Pump escapes	350	27.1
Pumps	1,105	85.7
Utility vans	465	36.0
Water tenders	5	0.4
Turntable ladders (mechanical)	45	3.5

[#] The number of occasions in which fires were attended by one or more of the different special appliances is given.

APPENDIX III (Contd.)

Table 9

PERSONS RESCUED OR ESCAPED BY EMERGENCY MEANS FROM FIRES

Reports from Northern Ireland, 1953

(Frequencies obtained from results of analysis of all reports)

Appliance or method used	No. of persons
Rescue with Fire Brigade assistance from	
Aircraft	10
Buildings	
Miscellaneous or undefined apparatus	2
Without apparatus	2
Total	14
Rescue without Fire Brigade assistance from	
Buildings	
Carried or assisted out	2
Lowered from windows, roof, etc.	2
Total	4
Escape by emergency means from	
Buildings	
Jumping from upstairs window, roof	1
Through ground floor windows	1
Total	2
Total persons rescued or escaped	20

APPENDIX III (Contd.)

Table 10

NATURE OF INJURIES OF CASUALTIES IN FIRES

Reports from Northern Ireland, 1955

(Frequencies obtained from results of analysis of all reports)

* Casualties who suffered shock in addition to another injury have been classified according to the nature of the other injury.

Nature of Injury	Fire Brigades	Other Casualties	Total
Fatal casualties			
Burns and scalds	-	10	10
Other and undefined injuries	-	27	27
Total	-	37	37
Non-fatal casualties			
Burns and scalds	8	28	36
Bruises, cuts, abrasions	9	10	19
Dislocations, sprains, fractures	1	1	2
Overcome by gas or smoke	1	-	1
More than one of the above injuries	1	-	1
Shock	-	7	7
Other and undefined injuries	13	12	25
Total	33	58	91
Total casualties	33	95	128

APPENDIX IV

DISCUSSION OF SAMPLE ANALYSIS FOR PREPARATION OF TABLES 1, 2, 3, 4A, 4B, 5, 7 AND 8

Method of selecting sample

The procedure adopted for selecting the one-in-five sample of reports for the preparation of Tables 1, 2, 3, 4A, 4B, 5, 6, 7 and 8 was first to add to each of the figures 1, 6, 11, 16, 21 etc. one of the figures 0, 1, 2, 3, 4, taken at random (tables of random numbers were used). A series of 10,000 numbers, the first eight of which were 1, 10, 12, 17, 21, 27, 34, 37, was obtained. These numbers were used for extracting from the reports of each Fire Brigade separately, the sample to be coded.

Accuracy of estimated percentages of different types of fires

Of the total number of reports in 1953, a sample, N , has been analysed: of this sample a percentage, p , has been observed to fall into a certain group e.g. fires caused by sparks from locomotives. This percentage is an estimate of the corresponding percentage which would have been obtained had the total number of reports been analysed. The accuracy of the estimate, p , can be defined by means of its 'standard error', s , which is given by the equation.

$$s = \sqrt{\frac{p(1-p)(1-f)}{N}}$$

where f = sampling fraction which is $\frac{1}{5}$ in the present instance

This formula can be used for estimating s even if N does not denote the total number of reports in the sample, but the number in a sub-category of the sample e.g. fires in buildings and the percentage, p , is based on this number. The sampling fraction is then not exactly known to be, but is assumed to be $\frac{1}{5}$.

The figures in the tables have been obtained by multiplying the results of analysis of the sample by five, and therefore $N = N'/5$ where N' is the estimated total of a particular category of fire on which p is based.

It is unlikely (only a 19 to 1 chance) that the actual percentage will differ from the sample estimate by more than $\pm 2s = E$

$$E = \pm 4 \sqrt{\frac{p(100-p)}{N'}}$$

The following examples show the method of calculating the value of E .

Example 1

7.0% of the 77,650 fires in England and Wales were attributed to sparks from locomotives (Appendix 1, Table 3).

$$E = \pm 4 \sqrt{\frac{7.0 \times 93.0}{77,650}} = \pm 0.4\%$$

There is therefore a 19 to 1 chance that the true percentage lies between 6.6% and 7.4%

Example 2

0.6% of the 8,060 fires in Scotland were extinguished with sand, earth, etc. (Appendix II, Table 6).

$$E = \pm 4 \quad \sqrt{\frac{0.6 \times 99.4}{8,060}} = \pm 0.3\%$$

The sampling error in this instance is large and there is a 19 to 1 chance that the actual percentage lies between 0.3% and 0.9%.

Accuracy of estimates of yearly totals of fires

An estimate of the returns of 1953 which would have been obtained had all reports been analysed, has been made by multiplying the results of analysis of the sample by five. The 'standard error', s' , of this estimate is given by the equation

$$s' = \sqrt{\frac{n'(N'-n')(1-f)}{N'f}}$$

where n' = figure in table.

N' = estimated total of a particular category of fire e.g. incidents in England and Wales.

It is unlikely (a 19 to 1 chance) that the actual yearly total for a particular group of fires will differ from the estimated figure, n' , by more than $\pm 2s' = E'$

$$E' = \pm 4 \quad \sqrt{\frac{n'(N'-n')}{N'}}$$

The two examples considered above show the method of calculating the value of E' .

Example 1. (Large value of n')

5,425 fires in England and Wales were attributed to sparks from locomotives. (Appendix 1, Table 3). The total number of fires in the country was 77,650.

$$E' = \pm 4 \quad \sqrt{\frac{5,425 (77,650 - 5,425)}{77,650}} = \pm 284$$

There is therefore a 19 to 1 chance that the true yearly total lies between 5,141 and 5,709.

Example 2 (Small value of n')

50 of the 8,060 fires in Scotland were extinguished with sand, earth etc. (Appendix II, Table 6).

$$E' = \pm 4 \quad \sqrt{\frac{50 (8,060 - 50)}{8,060}} = \pm 28$$

The proportionate sampling error here is large: there is a 19 to 1 chance that the actual yearly total lies between 22 and 78.