



Scottish Home and Health Department

Her Majesty's Chief Inspector of Fire Services for Scotland

Report for 1988



SCOTTISH HOME AND HEALTH DEPARTMENT

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Report for 1988

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Scotland

by Command of Her Majesty

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Report 1988

of R J Knowlton Esq, CBE, QFSM, FIFireE, FBIM To the Right Honourable
Malcolm Rifkind, QC, MP, Her Majesty's Secretary of State for Scotland.

Sir,

I have the honour to submit my Report on the Fire Services in Scotland for the
year ended 31 December 1988.

I have the honour to be,

Sir,

Your obedient Servant,

R J KNOWLTON

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Section A General

Inspections

1. A full programme of inspections of the eight Scottish brigades and the Scottish Fire Service Training School was carried out during the year.

2. Following the removal of the ban on co-operation with the Inspectorate by the Fire Brigades Union in July 1987, this year's inspections were conducted with the full co-operation of members of the brigades for the first time for two years. It quickly became apparent in the early inspections, and confirmed on each subsequent visit, that there was no legacy of ill-feeling towards the Inspectorate as a result of the two-year ban and the willingness and enthusiasm which was demonstrated everywhere showed that the good relationship of the Inspectorate with brigade members at all levels had been fully restored.

3. In addition to the full discussions with Firemasters during and at the conclusion of each inspection on the subjects of particular interest, I was invited to give oral reports to fire authority committees responsible for fire services in most brigade areas. These reports, which are followed by discussions with members of the local authority, have proved to be of great value in giving me an opportunity to stress the importance of local authority policies and leadership in fire safety matters as well as giving fire authority members a chance to hear of the state of readiness of their local fire protection services.

4. During the inspections, the opportunity was taken to check on the progress of the review of standards of fire cover which has been carried out in all brigades following the publication of a Report of a Joint Committee of the Central Fire Brigades Advisory Councils in 1985. All brigades have now completed the physical surveys which comprised the major requirement of the review and, in most cases, the Firemasters have reported to their fire authorities with recommendations for the necessary changes in fire cover arrangements. Except in the few brigades where little or no change is required, the recommendations will be the subject of an extended programme of action, following discussions with those representing local interests in the affected areas. Resiting fire stations, appliances and personnel will have considerable financial, organisational and social consequences and a phased programme of consultation and implementation is clearly necessary. Where reductions in fire cover are planned, specific approval from the Secretary of State is also required.

Fire Service Inspectorate

5. The role of the Inspectorate was enlarged by the acceptance of responsibility for fire prevention inspections in prisons, historic buildings and ancient monuments on transfer from the Property Services Agency. An additional Assistant Inspector of Fire Services post was approved to cover this additional workload and Mr Andrew Hershaw, who had formerly served in the PSA on similar duties, was appointed to the post. One AIFS post in the brigade inspections section of the Inspectorate was not filled after the retirement of AIFS, H Moran last year, but an Assistant Divisional Officer, Mr Patrick Cox, was appointed as a staff officer on secondment from Strathclyde Fire Brigade.

6. As a result of these changes, there is a better balance of staff at the correct levels within the Inspectorate and this was confirmed when the Inspectorate was itself the subject of a civil service staff inspection during the year. The staff inspectors recommended a number of minor internal changes in the staffing and organisation of the Inspectorate which will be implemented over a period but these will not affect the brigades or the Crown premises which are the subjects of our inspections.

Fire Authorities and Firemasters

7. At the end of the year the following Firemasters were in post:
- | | |
|------------------------------|---------------------------------------|
| Central Region | Firemaster I S T Adam, GFireE |
| Dumfries and Galloway | Firemaster J B Stiff, GFireE FBIM |
| Fife Fire and Rescue Service | Firemaster J White, MIFireE |
| Grampian | Firemaster A N Morrison, MIFireE |
| Highland and Islands | Firemaster D Grant, GFireE |
| Lothian and Borders | Firemaster R J Edmonds, MIFireE |
| Strathclyde | Firemaster C B Halliday, QFSM MIFireE |
| Tayside | Firemaster A Winton, QFSM MIFireE. |

For the first time for three years there has been a change of Firemaster, following the retirement of John Thomson, QFSM FIFireE from Fife Fire and Rescue Service. There have also been three Deputy Firemaster retirements during the year: John Hales QFSM MIFireE from Strathclyde Fire Brigade was replaced by John Jameson, John Pollard GFireE of Highland and Islands Fire Brigade was replaced by Robert Gordon and Samuel Marshall MIFireE of Tayside Fire Brigade was succeeded by Derek Marr. In each case the successor was promoted within his own brigade.

8. I would like to take this opportunity to record my sincere thanks to Firemasters and all members of brigades for their co-operation with members of the Inspectorate during the year, to congratulate newly appointed senior officers and to thank retiring members for their long and valuable service to the community in Scotland.

Honours and Awards

9. Senior Divisional Officer J Stewart, of Strathclyde Fire Brigade, received the Queen's Commendation for Brave Conduct on 28 April 1988 for the rescue of a young woman from a ledge on the 18th floor of a block of flats. To carry out the rescue, Stewart, secured only by a rope held by his colleagues, launched himself from the roof and swung down towards the woman, knocking her into the building to safety from her precarious perch where she had been in danger of falling for some considerable time. At the time of the rescue Stewart was a Divisional Officer Grade II in the 'B' Division Headquarters in Glasgow.

10. The following received recognition in The Queen's Birthday Honours Lists:
- Queen's Fire Service Medal*
Firemaster C B Halliday, FIFireE, Strathclyde Fire Brigade.
- British Empire Medal*
Sub-Officer A Whyte, Highland and Islands Fire Brigade.

The Fire Brigade Long Service and Good Conduct Medal was awarded to 190 members of the Scottish Fire Service.

11. It gave me great pleasure to attend the presentations by the Lords Lieutenant of the Queen's Commendation to SDO J Stewart at Dumbarton and the Queen's Fire Service Medal to Firemaster C B Halliday at Hamilton and to present some of the Long Service and Good Conduct Medals, on behalf of Her Majesty, during visits to brigades. I offer my sincere congratulations to all those whose gallantry or service was recognised by awards during 1988.

Section B Personnel and Administration

Establishment and strengths

Wholetime personnel— Operational

12. The establishments and actual strengths of brigades are shown in Table 1.

13. The total establishment figure for whole-time operational members of Scottish brigades on 31 December 1988 was 4,475, an increase of 57 over last year's total, while the actual strength of 4,408 was 81 higher than the 1987 figure. The difference between establishment and actual strengths of 67 has decreased for the first time for three years in spite of the fairly large increase in establishments during the year. As usual at the end of the year there is a slightly false impression given by the fact that several brigades have recruits ready to join the first training course of the new year who are not shown on brigade actual strength totals.

14. During the year 133 members left the service, the same as in 1987, and details of their reasons for leaving are summarised in Table 2. For the third year, the number of medical retirements fell, indicating that the pattern of increase which had been seen over the previous three years has now reversed, although the number is double that which was normal ten years ago. The figures for the last ten years are:

1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
32	31	34	30	29	46	57	65	63	60

If the number of members retiring on medical grounds continues to be more than the number retiring on pension at the completion of a full term of pensionable service, it may be necessary for the position to be reviewed at national level to consider this change in the actuarial situation and any action which may require to be proposed.

15. The Joint Working Party on Appointments Provisions, which was set up in 1984, completed its work and presented its Report to the Central Fire Brigades Advisory Councils during 1988. The section of the Report covering eyesight standards had been approved and issued to brigades in October 1987 because of difficulties being experienced by medical advisers in applying the visual standards previously in force. The remaining sections of the Report will form the basis for revised Fire Services (Appointment and Promotion) (Scotland) Regulations which will be published early in 1989. The Regulations amend entry standards but the Report covers more general recommendations for improving the health and fitness of firefighters throughout their service which, when adopted and implemented by brigades, will bring considerable benefits to serving and future members by improving their physical capabilities and detecting any incipient medical problems. The fire authorities and the public should benefit by having fitter firefighters and by reductions in sickness absences and premature retirements on medical grounds.

Retained and volunteer personnel

16. The part-time retained and volunteer establishments and strengths are:

	<i>Establishment</i>			<i>Actual Strength</i>		
	1986	1987	1988	1986	1987	1988
Retained	2,588	2,585	2,561	2,346	2,369	2,364
Volunteer	1,517	1,530	1,560	1,355	1,351	1,358

For the second year there has been a reduction in retained establishments, this year because of the closure of a retained station offset by an increase in whole-time cover

in the brigade area. The actual numbers of retained and volunteer members have increased, reflecting the efforts of Firemasters to improve the availability of retained crews and the opening of three new volunteer units, two in Dumfries and Galloway and one in Highland and Islands areas.

17. There are now five female retained firefighters and 17 female volunteers. Although there are no serving whole-time female firefighters, the new recruit courses for 1989 are expected to include Scotland's first whole-time female members of the operational service since the war. The Joint Working Party on Appointments Provisions took care to eliminate any bias through sex, race or ethnic origin in its recommendations and worked closely with the relevant national anti-discrimination bodies to ensure that requirements were based on operational needs alone.

18. The importance of the contribution made to fire protection in this country by retained and volunteer members was demonstrated once again this year. The most publicised event in which they played a major part was the Lockerbie aircraft disaster in December, where the majority of firefighting and rescue crews were made up of part-time members. They also played a vital role in many smaller incidents throughout the year and I take this opportunity to pay a tribute to their unselfish and dedicated public service which enables a good standard of protection to be provided over large rural areas.

Control Room staff

19. The establishment total for Control Room staff is 195 (189) and the number in post at the end of the year was 193 (189)—last year's figures are shown in brackets. The increase of six follows reviews of staffing levels in a number of brigades, increases taking place in Fife (4), Grampian and Lothian and Borders Brigades. The Home Departments issued guidelines for induction training for Control Room staff members, based on recommendations made by the Joint Training Committee and reported last year, and all brigades in Scotland adopted these programmes. The Fire Service College arranged special courses for Communications Officers who, although not necessarily forming part of the Control Room complement, play an increasingly important part in designing and maintaining the sophisticated apparatus now used in modern control rooms. Modern computer and communications equipment changes are frequent and rapid and it is essential for officers involved in this work to keep abreast of developments and to receive management and other training appropriate to their duties in the brigade.

Discipline

20. In 1988, 33 members of brigades were charged with offences under the Fire Services (Discipline) (Scotland) Regulations 1985 and 46 charges were involved. This shows an increase over last year's figures which were 23 members, involved in 32 charges. One of the cases was remitted to the fire authority, 29 were the subject of full hearings at brigade level and three were heard under the summary hearing procedure introduced by the 1985 Regulations.

21. The punishments awarded were:

Caution:	1	(2)
Reprimand:	18	(5)
Stoppage of pay:	12	(13)
Dismissal:	3	(3)
Resignation before Hearing:	1	

Last year's figures are given in brackets.

In addition, one member was discharged for misconduct without being charged under the Discipline Regulations following the Summary Dismissal procedure which came into effect in December 1985. The increase in charges compared to the numbers recorded for the last two years is accounted for primarily by an increase from 18 to 28 in the number of charges brought in two brigades.

Health

22. Although there is a wide variation in average levels of sickness among individual brigades, from 1.8% to 7.9%, the Scottish average remains fairly constant at 5%.

It is clear from the patterns recorded over several years that, in the smaller brigades where personal and individual monitoring is possible, there is a much lower average level of sickness absence. This suggests that the opportunity is taken to abuse the system in larger brigades although it must be remembered that these brigades are likely to have more major incidents involving injuries, which sometimes lead to prolonged absences which may distort the figures. Firemasters' attention was drawn to the variations which appear and asked to look at the reasons for the pattern shown by their own records.

23. The detailed survey of absences following injuries on duty continued for the third year with the following results:

(a) Number of persons sustaining injury on duty involving an absence of three days or more:	272
(b) Number included at (a) who sustained injury at a fire:	107
(c) Number included at (a) who sustained injury at a special service:	9
(d) Number included at (a) who sustained injury during training:	68
(e) Number included at (a) who sustained injury while engaged in other act:	88

A direct comparison with the previous years is not possible because, in refining the system to highlight useful information while limiting the additional work for brigades in compiling the figures, variations in times and categories were introduced. The broad conclusion which can be drawn, however, is that there are more injuries in training than in previous years and most of these involve lifting or carrying, which should be capable of improvement through instruction and techniques, or slipping and falling on the same level.

24. The same category, slipping and falling on the same level, also dominates the fireground injuries, but falls from a height, exposure to fire and striking fixed objects are also responsible for numerous absences from duty following accidents at fires.

25. The Joint Working Party on Appointments Provisions, whose Report was mentioned in paragraph 15, also covered the need for occupational health surveillance as a continuing service in brigades instead of the present arrangement of periodic medical examinations only for members over 40 years of age. Further discussions are being held on the introduction of this broader service which has wide financial and organisational implications, as well as opportunities for improving fitness and health in serving firefighters. The level of awareness of fire service personnel on the importance of health and safe practices has been enhanced by the wide discussions which have accompanied the deliberations of this Working Party which met 19 times between April 1985 and December 1987, and its effects will be felt for many years.

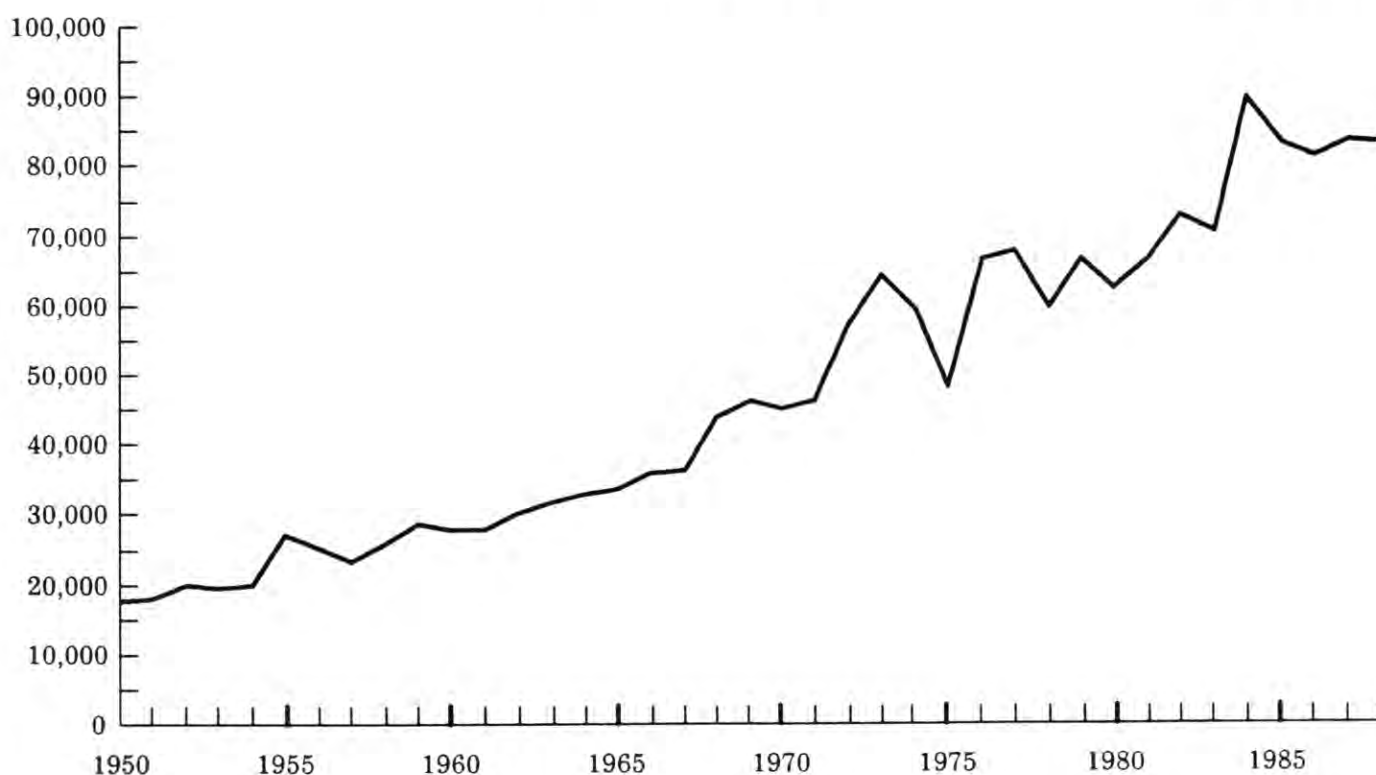
Pensions 26. There were no significant amendments to pension schemes for fire service personnel during the year.

Section C Operational

Fires and other emergencies 27. There was no significant change in the total number of calls received by Scottish brigades, 82,750 in 1988 compared to 83,098 calls in 1987. The pattern of the last four years has shown a falling-off against the steady rise which, as illustrated in Graph 1, has been a notable feature of fire brigades' activity for 35 years.

Total Calls

Graph 1



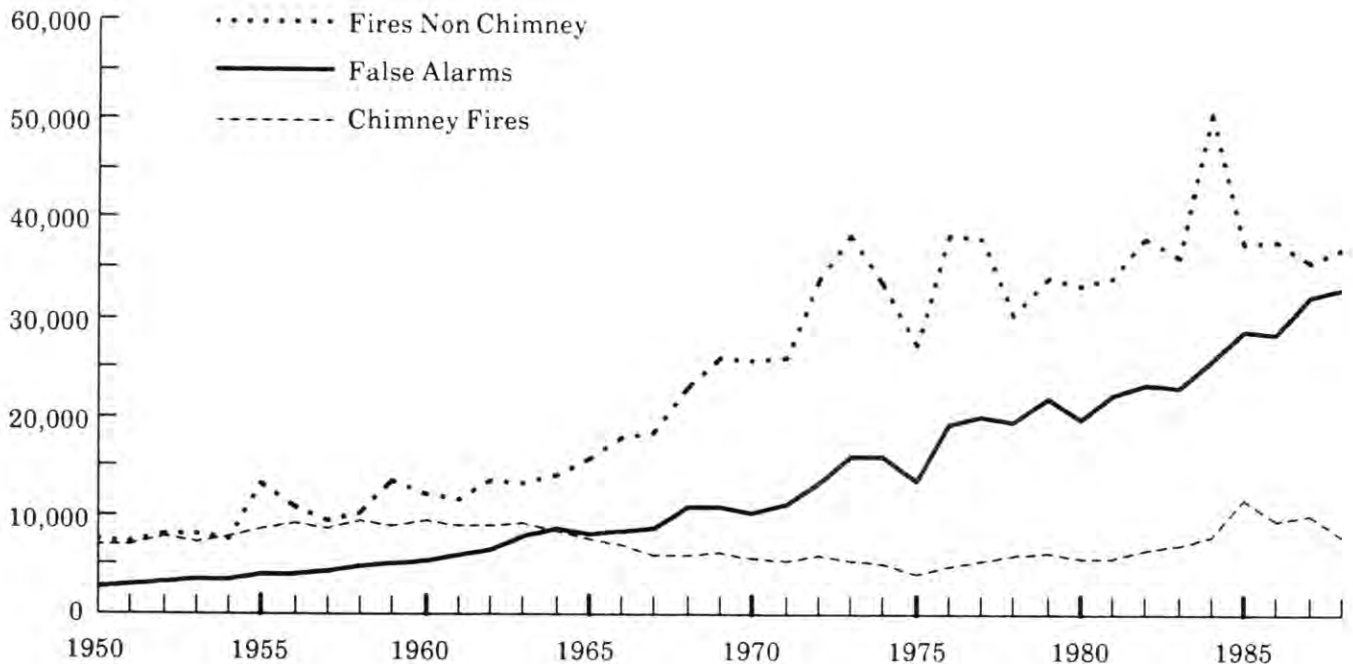
28. A detailed breakdown of the numbers and types of call is given in Table 3, which shows each brigade's activity in seven categories and indicates the relative size of fires attached by the number of pumps required to extinguish them. Comparison with the equivalent table for 1987 shows that there has been little variation in the number of fires, secondary fires, special services and false alarms due to equipment faults, but that calls to chimney fires have dropped by 16.3%. A reduction in chimney calls is shown in every brigade and is likely to be due to weather patterns rather than local campaigns calling for greater care on the part of householders using open fires.

29. Although there has been a 2.8% increase in false alarms of all kinds, compared to 1987, the change is small compared to the pattern of the previous five years when an increased rate of rise had been seen. Calls from defective automatic alarm systems fell slightly but malicious calls increased by 203 to 12,930 and genuine but mistaken false calls increased by 632 to 12,925.

30. A simplified representation of the changes in the levels of activity in brigades is given in Graph 2, showing the pattern for fires, chimney fires and false alarm calls on an annual basis since 1950.

Breakdown of Calls

Graph 2



31. This shows that the number of fires, excluding chimney fires, has increased four fold, but the number of false alarms of all types has increased more than ten fold in the same period. Some of this increase is due to the increasing number and sophistication of automatic detection systems in industrial and commercial premises but most of the additional false alarm calls were made knowingly by members of the public. The growing number of calls which are found to be false only after investigation by the brigade, but which appeared to be genuine at the time of the call, need not be a cause for concern because this reflects the growing awareness of the need for an early call to fire services, even if the caller is not sure of the nature or severity of the indication of fire. The increase in deliberate false alarms, although less marked than in recent years, is a cause for concern and has been the subject of comment in these Reports for several years.

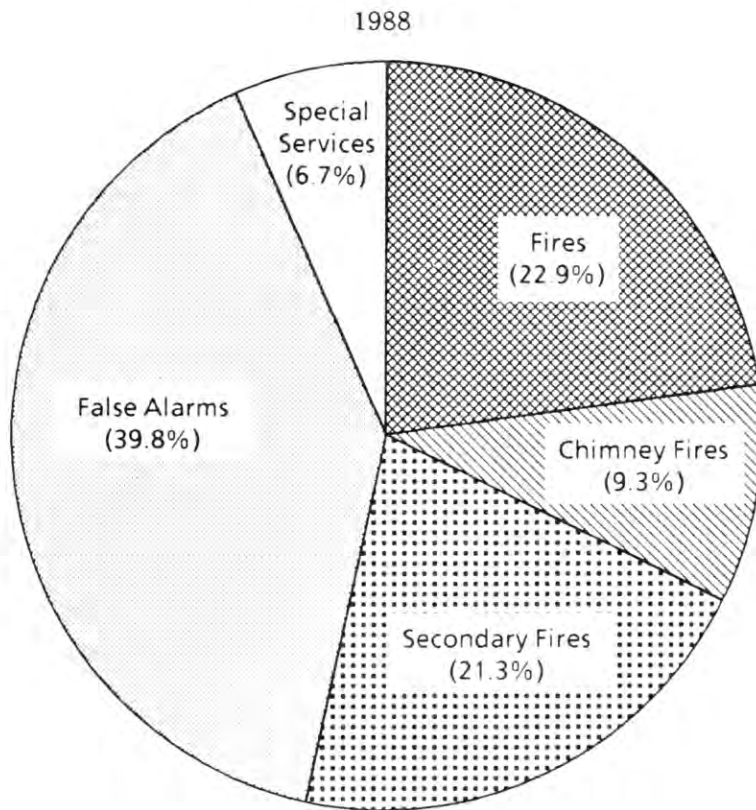
32. An illustration of the proportions of calls of different categories in 1988 is given in Graph 3. The size of the segments shows little variation from last year's equivalent graph but once more the wasted effort involved in responding to false alarms is clearly seen, representing almost 40% of brigades' responses. Genuine activity in responding to fires and special services is still the larger part of brigades' numerical workload but the false alarm segment of the chart grows slightly larger each year.

33. The proportions of different types of false alarm during the year are shown in Graph 4 which is broadly similar to the picture given in last year's Report. The equivalent percentage segments for 1987 were: apparatus faults: 21.9%, good intent: 38.4%, and malicious: 39.7%. The variations are small enough to be disregarded for practical purposes and the pie-chart must be seen as an indication that 60% of all false alarm calls are preventable by better maintenance or better behaviour on the part of the public.

34. Investigations carried out by the Home Department last year into possible lines of approaching the problem of malicious false alarms showed that, although penalties

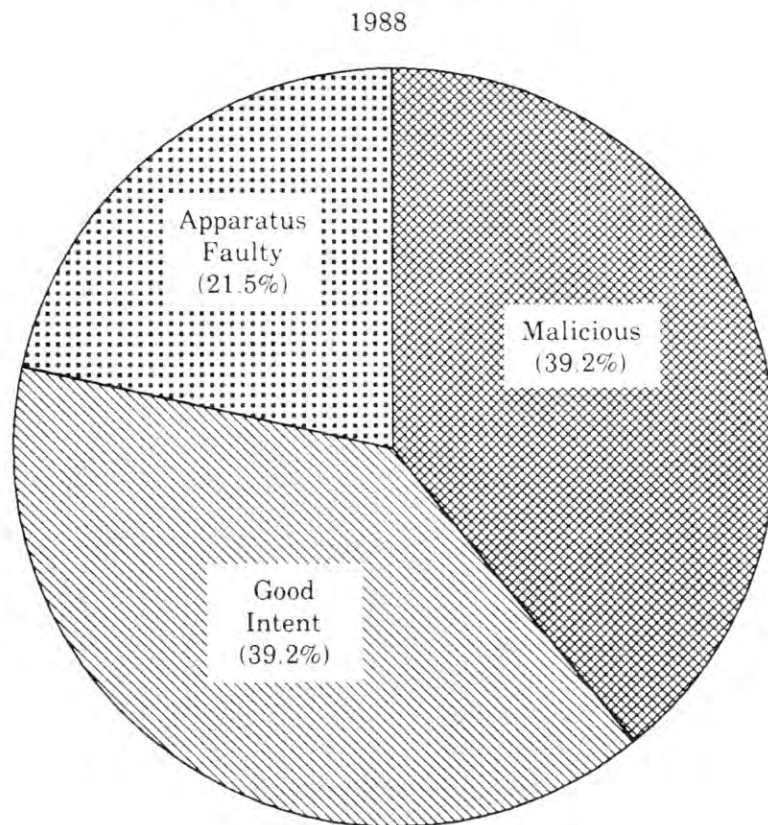
Type of Call

Graph 3



Type of False Alarm

Graph 4



following conviction are frequently very small in relation to the punishments which are available for this offence, the main difficulties stem from the very low rate of detection and the high proportion of juveniles thought to be responsible. In these circumstances, an increase in the severity of punishments awarded would have very little deterrent effect because there is a high probability of escaping detection (about 3% were effectively cleared up in 1987) and, in the case of juveniles, the more severe penalties are not available or appropriate. Public attitudes to deliberate false alarm calls are not helpful because they appear to be regarded as a sort of practical joke—a hoax—rather than a serious waste of resources and, potentially, a cause of lost time in responding to genuine calls. Attempts to publicise this problem in the past have led to an increase, rather than a drop in the number of malicious false alarms but properly directed, small-scale campaigns in schools in localities where numerous malicious calls from juveniles have been made in the past are more likely to have the desired effect. Firemasters have been asked to incorporate information on the true nature of false alarm calls in community education projects which are organised by brigades for use in schools. This, coupled with the speedier tracing of the origin of calls which will be possible as digital telephone exchanges are installed, offers the best hope for dealing with this problem of anti-social behaviour.

35. Only two brigades, Fife and Lothian and Borders, showed a reduction in the number of malicious calls received during the year in comparison with the previous year but, when it is considered that these brigades were third and first in last year's table showing the highest proportion of false alarm calls, this does not represent any cause for complacency.

Fatalities

36. The drop in the number of fatalities to 150, compared to 168 in 1987, was largely due to the reduction in Strathclyde, which normally accounts for half the Scottish deaths in fire. Tayside's figure was also lower than in recent years and the annual total for Scotland is the lowest for six years. While it is very tempting to assume that this is the result of the increased activity of brigades, local authorities and safety organisations, coupled with the widespread public interest generated by a spate of serious life-loss fires in England and Wales, it is more likely to be a normal statistical variation which may be reversed in future years. Nevertheless, it is heartening to the campaigners who receive encouragement from the fact that 18 fewer people died in 1988 and it is to be hoped that this will encourage all who are working to reduce the death toll in Scotland.

37. A more realistic view is that less than half this number is recorded each year for an equivalent population in England and there is still no convincing explanation for this major difference which has been highlighted in previous Reports. The historical perspective is shown in Graph 5, which appears to indicate a lull in the long consistent pattern of increase, but this can be changed very quickly by one or two serious incidents involving loss of life.

38. This was amply demonstrated on 21 December when a Pan-Am aircraft, flying to the United States from Heathrow, was damaged in an explosion over Lockerbie in Dumfries and Galloway Region, and crashed on to the town, spreading aviation fuel over a wide area. The fuel ignited and large sections of aircraft and engines fell on to property, causing widespread damage and large areas of burning buildings, cars, caravans and outbuildings. None of the crew or passengers, numbering 259, survived the explosion and crash and 11 other people were killed on the ground, in their homes or on the street, from fire, explosion or crushed under collapsed buildings. These deaths are not included in the annual total because it is not known at present, and in some cases may never be known, which victims died as a result of fire and which were killed in other ways. It is likely that these deaths will always remain outside the normal record of fire statistics, although they serve as a terrible reminder of the speed and unpredictability of disaster and the enormous destructive power of an aircraft and its fuel load.

39. Just two months earlier, on 21 October, a small light aircraft crashed on to the A9 road at Drumochter Pass in Highland and Islands Fire Brigade area, killing the three occupants and resulting in a fire. Fortunately in that case no-one on the ground

Fatalities

Graph 5



was injured. These two unconnected incidents remind us that all emergency services must be prepared for the most unlikely disasters and broad, flexible plans for co-operation must be worked out and kept alive and up to date so that they can be used in all circumstances.

40. The public's expectation is very high because of the rapid advances which have been made in communications, travel and technical equipment which can aid speedy and effective action, but the essential features which lead to a successful response remain the basic requirements of planning, teamwork and human dedication. Dumfries and Galloway is the only Scottish Brigade which has been given responsibility for emergency planning and it is still in the early stages of preparing plans and improving co-operation between the many organisations who play a part in supporting the public in times of disaster. The value of this early preparation and the precise role played by the Brigade in the emergency will not be clear until more details of the events are made public and an assessment made from a more informed and detached examination of events. It is significant, however, that in contrast to the barrage of criticism of the services responsible for handling disasters, which is often heard, there was nothing but praise for the organisation and skill of all the emergency agencies. The US Ambassador, Mr Charles H Price, who had a close involvement with the incident because it was caused by an aircraft owned and built by US companies and carrying mostly Americans, said that "Dumfries and Galloway set the standard for all those who may have to deal with a disaster". This is all the more noteworthy, in relation to the fire brigade's part in this event, because a high proportion of the crews involved were from retained, that is part-time, stations.

41. Details of the age groups, locations and months of occurrence of fatalities by brigade are given in Table 4. This does not include those killed by the two aircraft crashes, although fire was involved in both cases.

42. It is to be expected that there will be fluctuations in the number of deaths in various categories each year because of the random and largely unpredictable nature of each event. Certain features tend to predominate in every year of recorded figures, however, and it is important to highlight these and concentrate efforts aimed at reducing fire deaths on those groups, places and times which repeatedly show higher losses than others.

43. The age group most often involved is, once again, the over 60s, with half the annual deaths, 75 of the total of 150, being of people in this group. The most common location remains a flat or tenement, 68 of the 139 deaths in dwellings occurring in this type of property, while only one death occurred in buildings which are the subject of fire prevention legislation, industrial and commercial buildings, hotels, boarding houses, hostels, etc. There is a change in the usual pattern of deaths in relation to the month of occurrence, which has usually shown the highest rates of death in the first few months of the year. No clear pattern has emerged in that way in the 1988 figures which have been affected by a small number of multiple-fatality fires.

44. Other features which are often repeated in fatal fires are the cause—smoking materials being responsible for the highest proportion, isolation—elderly persons living alone, alcohol—taken in excess by victims or those responsible for victims, and foam furniture. It was especially pleasing to see that a major step was taken to reduce the flow of furniture upholstered with polyurethane foam when the Parliamentary Under Secretary for Industry and Consumer Affairs, Mr John Butcher, gave details of new Regulations on the flammability of domestic furniture on 29 June. These Regulations are staged to control the filling materials used in the retail sale of upholstered furniture from 1 March 1989 and covering fabrics from 1 March 1990. Trade sales of modern, second-hand furniture will have to comply with the full requirements of the Regulations from 1 March 1993 and miscellaneous rules cover the use of foam fillings in pillows, cushions and for caravan and garden furnishings.

45. Complete elimination of polyurethane foam as a feature of rapid-spread, life-threatening fires will obviously take some years, but an early stop to the manufacture and sale of dangerous furniture, as required by these Regulations, will obviously help to reduce the scale of the problem. Unfortunately the homes in which the problem is likely to persist longest, those of the poor and the elderly, are the places of greatest risk where fires leading to injury, and possibly death, are most likely to occur. It is a positive, physical step, however, and the more likely to succeed quickly because it does not rely on improvements in the awareness or behaviour of the general public.

46. At the same time, brigades have stepped up their campaigns to encourage the installation of smoke detectors in private homes and have received widespread support from local government and other agencies with responsibility for housing. Several imaginative schemes have arranged for the installation, and just as important, the maintenance, of smoke detector alarms in the homes of elderly and disabled people who would be unable to make arrangements for their own installations and this has encouraged neighbours and relatives to arrange for better care and a closer watch on lonely high-risk old people.

47. The combination of more smoke alarms with the gradual reduction in the use of polyurethane foam furniture offers hope that the recent fall in fire deaths in Scotland will continue but smoking and alcohol are more difficult to combat as contributory factors because their use and abuse are so widespread.

Rescues

48. Fire brigade crews rescued 685 (579) persons from fire during the year and, in addition, removed 711 (899) persons from dangerous situations in which there was no fire and extricated 704 (566) persons from vehicles at road accidents (last year's figures are given in brackets). The steady increase in the volume of this type of work, which has been the subject of comment in previous Reports, has been matched by the increased training effort made by all brigades and by the wider availability of specialist rescue equipment, even in remote rural areas. The advantages of using this equipment have been clearly demonstrated over many years of use and the speedier extrication of crash victims reduces the likelihood of complications from delay in obtaining hospital treatment for serious injuries in addition to reducing the anxiety of all those involved. Some brigades have changed their titles to include the word "rescue" in the name of the organisation to reflect the increasing importance of this work in their service to the public, whose awareness has been heightened by television and press pictures of firefighters carrying out rescues at major rail, road and aircraft crashes.

Road accidents 49. The number of road accidents attended also showed an increase to 1,697 from 1,556 in 1987, 1,568 in 1986 and 1,448 in 1985. Just over one third of the attendances, 580 out of 1,697, involved the extrication of casualties and, as noted above, 704 victims were released in these incidents.

Fire damage 50. Details of the estimated cost of fire damage have been given in these Reports for several years, based on figures for Scotland and the United Kingdom supplied by the British Insurance Association. These figures were collated from estimates of financial losses incurred in fires in property covered by members of the BIA in which losses of £50,000 or more were suffered. Allowances were added for smaller and abnormally high loss incidents and to cover property insured by Lloyds' underwriters or not insured. This gave an annual figure which could be compared with figures for previous years which were collated in the same way.

51. The BIA has now been replaced by the Association of British Insurers (ABI) who, in attempting to achieve greater accuracy, have left out the allowances for Lloyds' insurances and uninsured property. The fire loss total for Scotland, which was always rather difficult to obtain from BIA, will no longer be available from ABI and so no Scottish figure of fire losses can be given. The table of individual large financial loss fires in Scotland, carried in this Report since 1985, is also not included this year because the particulars supplied by the ABI are not sufficiently reliable for record purposes. The ABI's estimate of fire losses in the UK during 1988 is £650 million but, as indicated, this figure cannot be used for direct comparison with the figures for previous years because they have been compiled from a different set of principles. After this year it will be possible to draw comparisons with the 1988 and succeeding years' figures but, unless there is a change of policy in the ABI or some other source is found for this information, Scottish figures will no longer be available. This is a matter for regret since there are clear distinctions between fire loss and fatality figures in Scotland and those for the rest of the United Kingdom. The loss of a measure, even though it was known to be an approximation, is a handicap, particularly when greater efforts are being made than ever before to analyse, identify and tackle the problems caused by fires and fire losses in Scotland.

Section D Supplies and Services

Transport

52. The number of pumping appliances in service with brigades shows little variation in recent years except that there is a tendency for fewer spare appliances to be held because of better standards of replacement of front-line vehicles and longer service intervals. There were 419 pumping appliances on 31 December 1988, compared to 420 at the same time in the previous year and 90 special appliances compared to 84 in 1987. The wide range of types of special appliances is expanding each year to include more vehicles which have interchangeable storage units, called pods, which are carried by a single traction chassis. This system, or the trailer alternative, allows for special, infrequently-used equipment loads to be quickly available for transport to an incident, without the need for large numbers of special appliances, each of which would require to be housed and maintained. The spread of this type of equipment system makes comparisons between numbers of special appliances in succeeding years of little value because there is not a common basis for the comparison.

53. The standard of equipment issued to volunteer units varies according to the needs and capabilities of the locality but the trend in recent years has been towards more mobile equipment and better buildings. A number of volunteer units are equipped with appliances to the same standard as those used by whole-time crews, while the majority have smaller, lighter vehicles or portable units which are easier to use and maintain and need less training and smaller storage buildings. Most brigades are upgrading their provision for volunteer units and this is making a significant improvement to local fire protection arrangements over a wide area, although it is hardly noticeable to the general public because the physical changes are small and take place in isolated, remote communities.

54. Following general advances in appliance cab design in recent years, mainly for improved safety for crew members, a circular issued in March gave details of new requirements for seat belts. These are incorporated in specifications for new vehicles so that manufacturers will fit seat belts for crew members in all new appliances.

Equipment

55. The steady improvement in the range and numbers of breathing apparatus, road accident extrication and other portable equipment items has continued and the general standard in all brigades is very close to the target level with programmes continuing for remaining items of equipment. There is now little difference between brigades in capability and this is largely due to the universal acceptance of nationally-agreed standards. Many of these are not mandatory but since they result from thorough consideration and, where necessary, evaluation by brigades from all parts of Britain, they become authoritative recommendations because they represent a consensus view of firefighters' representatives and specialists. Normally issued as Fire Service Circulars and specifications, these recommendations are used as a basis for brigade requirement specifications, with some opportunity for necessary local variations, and the results are monitored by the Inspectorate. The findings of the Inspectorate are then fed into the Joint Committee system so that there is a constant review of equipment standards and suitability with the opportunity for steady improvement coupled with a high degree of compatibility between brigades.

56. The Factory Inspectorate branch of the Health and Safety Executive advised that electrical equipment and generators used on the fireground should be designed to operate at 110 volts instead of the 220/240 volts systems which were common at one time. A Circular issued during the year advised that all new systems should be of 110 volts (centre-tapped) type and that equipment which could not be adapted

to the lower voltage should be replaced. This brings fire brigade equipment into line with requirements for portable equipment in factories and industrial sites and reduces danger to operators using the equipment in difficult situations.

57. A testing programme is being started to enable consideration to be given to an extension of the programmed life of ultra-lightweight breathing apparatus cylinders used in fire brigades. When they were first introduced, these cylinders were given a shorter programmed life expectancy than traditional cylinders because they were made of new materials using different construction methods. Their expected life span is now reaching its end but there appears to be good reason to extend it as a result of experience in use and testing.

Uniform and personal equipment

58. A similar system of trial and improvement applies to the equipment actually worn by firefighters except that much closer consideration is given to detailed design and safety features because of the personal nature of the equipment and the necessity for comfort when worn in difficult conditions over long periods. This means that progress is rather slow and results from small gains over long periods and not major changes following revolutionary developments. There is a constant examination of new materials and design features which may offer opportunities for improvement and the areas most often under consideration are helmets, fire tunics and boots. A new concept of fire helmet design is being evaluated, based largely on original research carried out in France, which set out to incorporate breathing apparatus, communications and lighting requirements in improved head and face protection. Newly developed materials and construction techniques are used in the manufacture of these helmets which appear to offer great improvements in personal protection and comfort.

59. The main problem in tunic design is to find a combination of fabrics and fastenings which resist water, radiated heat and flame or glowing embers, while allowing the wearer to move quickly and freely when carrying equipment or wearing breathing apparatus. The tunic must also allow a free circulation of air to disperse body heat in hot, humid conditions but be warm in cold, dry air. The optimum tunic must obviously be a compromise between these conflicting requirements and there is a constant struggle to meet more of these needs in a single design. After many years of experiment and practical use of a tunic made of a sandwich of three man-made fibres, there is now a trend towards reintroduction of a modified form of woollen fabric—the traditional material from which early fire tunics and naval firefighters' protective clothing had been made. The early tunics were also used as a formal dress uniform but this concept has been abandoned in favour of a suitable working garment.

60. There are also conflicting requirements for boots which must be capable of providing protection from water, chemicals, sharp objects underfoot and crushing objects from above and yet be comfortable when used for long periods and light enough to climb ladders and run over rough surfaces. For some years, a boot having a leather sole with steel reinforcement and rubber uppers strengthened at toe and ankle has been the standard but in the last year further consideration has been given to standard sizes, better socks and all-leather boots in an attempt to improve comfort at prolonged incidents.

61. Since it is unlikely that perfection in protective equipment will ever be achieved, if only because the needs and perceptions of individuals vary, this constant research and improvement is likely to continue with the development of new materials and design features.

Water supplies

62. There has been no significant change in the number of hydrants in service or converted to British Standards but programmes of conversions continue in the few brigades where non-standard hydrants are still in use. The main activity in this field continues to be the regular testing of existing hydrants and consideration of the brigades' needs for new hydrants when new mains are planned or when existing mains are upgraded or extended by the water supply departments.

63. In areas where mains water is scarce or not available, it is necessary to plot and monitor the availability of open water supplies which may be required for firefighting purposes. Most fire appliances carry a supply of water sufficient for an initial attack on a fire and to cover rescue attempts but in more severe fires, additional water supplies may be needed and accessibility and knowledge of their availability at different times of the year are vital if time is not to be wasted by reinforcing crews. The local knowledge of retained members who live and work in country areas is particularly valuable in this respect.

Premises

64. Dumfries and Galloway Fire Brigade officially opened a replacement retained station at Castle Douglas in October and a site for the replacement of the retained station at Lockerbie was approved. The first phase of the major extensions to Strathclyde Fire Brigade's Headquarters at Hamilton was completed ahead of schedule, just before the end of the year. When these rooms are in use, this will allow the redevelopment of most of the existing HQ buildings, after which the temporary office structures will be demolished, 15 years after they were brought into use. A replacement retained station at Douglas was opened during the year and, also in Strathclyde, an extension was built at Oban to enable officers covering that area to operate more efficiently.

65. Following the review of standards of fire cover, which has been mentioned in recent Reports, Central Region Fire Brigade has closed its retained station at Dollar and placed a contract for a replacement retained station at Denny. Dumfries and Galloway Fire Brigade have commissioned two new volunteer units, only one of which has garage accommodation, but the trailer units designed for these situations include space for the volunteers' clothing and boots and so are self-contained.

66. In Tayside, site preparation started in Dundee for the replacement of the "A" Division HQ and whole-time fire station at Strathmore Avenue. Fife Fire and Rescue Service have extended the drill yard of the retained station at St Andrews and carried out a major refurbishment of the whole-time station at Kirkcaldy. Lothian and Borders Fire Brigade converted the ground floor of its old fire station at Lauriston Place, Edinburgh, into a museum to form a part of its fire education programme.

67. The Highland and Islands Fire Brigade completed its extensions to the retained station at Ullapool and negotiations for sites for upgrading six volunteer units are in various stages of progress. In Grampian, the retained station at Strathdon has been rebuilt, although progress has been slow in attempts to find a site for a replacement for the whole-time station at King Street, Aberdeen.

68. The good weather enabled progress to be maintained in building projects in all brigades and many were finished early or advanced beyond the predicted schedule at the end of the year. While this was generally welcomed, it caused cash-flow problems in some brigades.

Communications

69. This year work has once again concentrated on the procurement and installation of mobile radio equipment to enable brigades to comply with the need for changing frequencies as agreed internationally at the World Administrative Radio Conference (WARC) in 1979. The deadline by which the present use of frequencies within the band 88 MHz to 108 MHz must cease is December 1989. Clearly, it has not been possible for all conversions to be carried out simultaneously and the work has been programmed to take place over four years. In accordance with that programme, Fife and Tayside completed their conversions in 1987. Lothian and Borders Brigade changed over to their new communications system using the new frequencies in June 1988. Installation work is progressing in the other brigades which are yet to be converted and all work is expected to be completed well before the deadline.

70. In expressing satisfaction with the progress made, I should draw attention to the many difficulties which have been overcome in achieving the target dates, frequently against heavy odds and in frustrating circumstances. Apart from the obvious difficulties of obtaining the right equipment from manufacturers on time, there have been delays caused by the need to obtain planning permission for additional

hill-top sites for transmitting aerials, lightning strikes on aerial masts after erection, access difficulties to remote aerial positions and unexpected interference on the new frequencies. It is a credit to all those involved in this work that such consistent reports of progress have been possible in such frustrating circumstances. The opportunity has also been taken to improve facilities for future maintenance and fault-tracing to reduce travel for engineers to the many remote hill-top aerial sites. Most of the new systems incorporate equipment which enables the correct functioning of many distant components and modules to be tested from the Headquarters or relay stations, monitoring the integrity of the whole system in a very short time.

71. Licence fees for emergency service radio systems were increased considerably this year by the Department of Trade and Industry as indicated in last year's Report. Smaller brigades and police forces, in common with those in England and Wales, objected to paying the same fee as considerably larger organisations, and the Scottish Office Directorate of Telecommunications were involved in negotiations to try to reduce this unwelcome burden. Discussions have centred on the proposal of a graded fee structure to be introduced at the first opportunity.

72. As British Telecom continue with their conversion of the public telephone network to a digital system and, at the same time, rationalise the location of their operator service centres, the emergency services are affected by consequential changes in the 999 service. Problems occur as the operator centres become remote from the emergency authority controls and also as the proportion of false calls increases against a steadily increasing number of genuine emergency calls. Many meetings and discussions have taken place to seek solutions acceptable to the many parties involved. As digitalisation of the public network continues, it is inevitable that emergency calls will increasingly be received by brigades over the new digital public network rather than over dedicated private wires and methods to ensure reliability are being established. The advent of the digital network promises that the facility of "Calling Line Identification" will become available which will enable the instantaneous location of the originator of a 999 call. However, during the interim period of transition while a hybrid analogue/digital network exists, brigades will unfortunately suffer minor but irritating consequences. Nevertheless regular meetings with British Telecom take place at which these problems are discussed in order to keep them to a minimum.

73. Discussions between the Home Office and the Department of Trade and Industry have resulted in three additional frequencies becoming available for fire-ground use throughout Great Britain, and a working party, set up originally to resolve problems arising with the WARC frequency conversion programme, will decide upon the best use to be made of these additional fireground frequencies in Scotland.

74. During the year, British Telecom updated their operator centre at Motherwell to enable it to deal with all 999 calls from cellular telephones in the North of England and Scotland. This centre also serves as a standby for cellular 999 calls for the whole of Great Britain should the southern sector at Shoreditch in London fail or become congested. It is hoped that the service will be introduced in Scotland in 1989.

FINDS 75. The Fire Information National Data Service is a national computer network linking all brigades in Scotland with the Scottish Home and Health Department, the Home Office, the Fire Service College and most of the brigades in England and Wales. It is controlled from a base in Bradford and is the result of three years of research by Bradford University at the request of the Chief and Assistant Chief Fire Officers' Association. It was officially inaugurated by the Home Secretary in June and provides a bank of operational information which is available within minutes to anyone connected to the system. This will enable brigades to locate and mobilise special equipment, supplies and experts needed to deal with major emergencies, disasters or unusual incidents with a minimum of delay and human intervention. It also carries up-to-date information on research and evaluation projects in brigades, library records of reported research and details of establishments and appliances in each brigade. The electronic mail-box facility enables one, or any number of brigades and other users to be contacted immediately with a written message with the possibility

of an equally quick response, should there be a need for enquiries or broadcast of urgent information throughout the country. Each user has a liaison officer to ensure that its own records on the computer database are kept up to date and to respond to technical enquiries on the conduct of the system.

76. FINDS has been designed by and for the fire service but there is obvious potential for it to be used for other emergency services as well as government and local authority bodies and trade associations. It is believed to be the first system of its type in the world and, if its full potential can be realised, it offers a considerable improvement in mutual co-operation between emergency services and progress in fire-related research, while aiding the free flow of information between brigades and the Home Departments.

77. Each participating user pays an annual fee to CACFOA Research Ltd, a registered charity which acts as the parent company. This fee provides the equipment required at each terminal, a key board, visual display unit and printer, and the main computer and support staff at Bradford. The only other cost is for telephone calls when the system is used and this offers a very cost-effective system, reducing telephone time, delay and duplication involved in using the methods which had to be used previously to obtain information of this sort.

Section E Fire Prevention

Summary 78. The number of premises visited by brigades for fire prevention purposes was 71,872, an increase of 888 on last year's very large improvement over previous years. The number of building plans submitted to brigades for comment also increased in comparison with the 1987 figure, 10,428 plans being considered as against 9,997 in the previous year. Other visits by brigades' officers to carry out lectures, drills or other fire prevention duties were made on 2,708 occasions, also showing an increase over the previous year.

Education and publicity 79. The Scottish Home and Health Department sponsored the screening of fire prevention television commercials and the broadcasting of similar safety material on local radio over the Christmas and New Year period. A supporting news release, endorsed by Lord James Douglas-Hamilton MP, Minister for Home Affairs at the Scottish Office, was issued urging extra care over the festive season.

80. A news release about the dangers from fire in the winter months was issued by the Scottish Office in February because it is clear that the risk of fire and, particularly, the likelihood of injury or death from fire, is greater in the first few months of the year than at other times. Reminders of simple, basic precautions which may obviate fire risks are especially necessary at this time and brigades fully supported the Home Department's initiative with local campaigns. A further news release, supported by Lord James Douglas-Hamilton, was issued at the start of the National Fire Safety Week (24-29 October) which is an annual reminder for the public of the need to guard against the danger of fire.

81. Community education and liaison sections have been set up in several brigades and additional officers appointed to enable a concerted and systematic effort to be made to increase public awareness of the dangers of fire.

Inspection and certification of premises 82. The number of fire certificates issued under the Fire Precautions Act 1971 during the year was:

Factories	202 (259)
Offices, Shops, etc	788 (914)
Hotels and Boarding Houses	144 (178)

The 1987 figures are shown in brackets.

In addition the number of fire certificates which were revised was:

Factories	281 (334)
Offices, Shops, etc	668 (608)
Hotels and Boarding Houses	451 (447)

83. The number of new certificates decreased in all categories while revisions increased in two of the three categories in comparison with work carried out by brigades last year. This is a reflection of the situation that most brigades have almost completed outstanding work in existing buildings and are mainly involved in new applications or amendments following alterations or extensions to buildings which already hold a certificate.

84. In addition to the statutory inspections and certifications listed above, all brigades use operational crews to an increasing extent on follow-up visits to ensure

compliance with requirements set out in fire certificates. They also carry out surveys and inspections in premises which do not require certificates and this large volume of work forms a valuable support for the work of fire prevention officers as well as giving an opportunity for fire crews to become familiar with buildings in their station turnout area. It also acts as a training aid for members of the brigade who will go on to become fire prevention officers after suitable training and specialist instruction.

Joint Fire Prevention Committee

85. The Committee met twice during the year, in April and October, and considered details of the revision of fire safety guides for use in the implementation of fire precautions standards. These guides are required for the Fire Precautions Act 1971 and the Fire Safety and Safety of Places of Sport Act 1987 and are designed to enable occupiers of buildings and those without specialist fire prevention knowledge to understand the principles of fire protection legislation and its practical application.

86. The Committee also considered the final draft of the Guide to Fire Precautions in Existing Places of Entertainment and Like Premises. This will replace and augment the scope of the Manual of Safety Requirements in Theatres and Other Places of Public Entertainment which was issued by the Home Office in 1934.

Building Standards Advisory Committee

87. The major revision of the Building Standards (Scotland) Regulations continues and the Inspectorate has played a full part in the main Committee and its working parties dealing with structural fire precautions, means of escape from fire and assistance to the fire service.

Health and Safety Executive

88. The close links between the Inspectorate and the HSE representatives have continued, the Inspectorate being represented on the HSE Advisory Committee on Dangerous Substances and the HSE sending an adviser to all the Joint Committees of the Central Fire Brigades Advisory Councils which have a bearing on health, safety and welfare matters. The special position of firefighters deliberately going into situations which are expected to be hazardous requires careful consideration in relation to proposed legislation which is designed to safeguard workers in industry. Continuous and regular contacts between FSI and HSE members enable a better understanding of likely difficulties in relation to the balance which needs to be maintained when firefighters' safety is under consideration.

Fire Safety and Safety of Places of Sport Act 1987

89. In 1988, four commencement orders were made under Section 50 of the Act. The first came into force on 1 January 1988 and gave power to fire authorities to charge for the issue of fire certificates, gave a definition of terms used in the Fire Precautions Act 1971 in relation to escape to a place of safety, made premises which may be exempt from certification liable to take fire precautions measures and gave to fire authorities power to issue prohibition notices where serious fire risks may endanger life.

90. The second order applies only to England and Wales, the Scottish application being covered in the third order which removes the application of Section 41 of the Civic Government (Scotland) Act 1982 to the mandatory licensing of indoor premises for sports entertainments to which the public are invited as spectators, and amends the definitions for luminous discharge tubes in the 1982 Act in line with present day practices in the electrical industry. These changes came into effect on 1 June.

91. The fourth order was signed on 21 October to come into effect on 1 January 1989. This implements the final phase of those parts of the 1987 Act which deal with spectator safety at places of sport.

Youth Fire Prevention Quiz

92. The quiz is organised by the Chief and Assistant Chief Fire Officers' Association under the sponsorship of the Fire Protection Association, a part of the loss prevention activities of the insurance industry. In 1988, over 16,000 people aged between 13 and 16 studied the relevant literature to take part in this national competition. There were 3,200 teams in the first round and this represents a very beneficial fire education initiative. The Scottish Final of the quiz was held in June at Tayside Fire Brigade HQ and, once again, all the Scottish brigade areas were represented. The winning team of Girl Guides came from Monifieth, Tayside, but the widespread nature of

the competition is illustrated by the fact that the winning team in the Highland and Islands Brigade area, which took part in the Scottish Final, was from Symbister High School on the island of Whalsay, Shetland. The standard of knowledge and precision at national level is extremely high and the Tayside team representing Scotland were beaten by a team from Wales in the National Final which was held in the City University in London in October.

Section F Training

Scottish Fire Service Training School

93. The School completed its first year of operation under its new Commandant, Mr C F McManus, QFSM MIFireE, following his appointment on 1 January 1988. The School's main function continues to be training recruits for Scottish fire brigades and, in order to make economical use of the available resources, it also provides instructional courses for junior officers and specialists from whole-time and retained stations in Scotland and recruits from Northumberland. Non-fire service organisations use the premises for instructional and technical courses, without the involvement of teaching staff from the School. All these activities combine to make full use of the facilities which are available at the School and ensure that the maximum benefit is obtained from resources allocated, without detracting from the School's main purpose.

94. A total of 210 recruits completed their training during the year. Other courses were provided as follows, with the numbers attending in brackets:

Retained Fireman	(56)
Retained Junior Officer	(31)
Whole-time Leading Fireman	(65)
Breathing Apparatus Instructors	(35)
Retained Breathing Apparatus Operators	(4)
Retained Recruits	(23)
Specialist Legislation	(28)
Hospital Fire Safety	(30)
Road Traffic Accident Instructors	(22)
Prison Officers' Fire Prevention	(34).

95. For the second year, the School was formally inspected and once again the Inspectors were assisted by Mr D Dick, OBE (formerly Principal of Stevenson College, Edinburgh), who advised on teaching methods, assessments and curriculum planning. The inspections have confirmed that the high standards set by the School are being maintained and that modern methods of instruction are incorporated in the School's programmes whenever appropriate. Many of the instructional staff are seconded from brigades and this system is very effective in using experienced junior officers to train new recruits and in enabling practical experience of teaching to be given to operational officers from brigades.

Fire Service College

96. Brigades resumed a full programme of involvement with College courses and seminars during 1988 and, in almost all cases, were able to obtain places for all the nominations made to the College. In the areas where sufficient places were not allocated, there is a general problem of course provision, notably for junior officer and divisional command courses. A total of 342 students attended College courses and seminars, an increase of 59 over the figure for the previous year. The cost of travel and subsistence for attendance at the College, which is at Moreton in Marsh, Gloucestershire, is a considerable burden on Scottish brigades because of the distance involved in travel from any part of Scotland. It is very important that full participation in College activities should be maintained, by students and officers seconded as instructors, to ensure the maintenance of the high standard of technical knowledge, practical expertise and leadership and management qualities in Scottish brigades.

97. At the beginning of the year the Commandant, Mr George Clarke, CBE FIFireE, sent a letter to all Firemasters explaining the policies of the College and

outlining the changes which are taking place following the academic review which was conducted in 1986. These changes include a new committee structure, a reorganisation of course and teaching structures, improvements in course development, student assessment and reporting systems as well as more practical matters such as buildings, computer aids and fireground equipment. Many of the recommendations of the academic review are complex and require the creation of special study groups to enable proper progress to be made. This means that developments are staged so that resources can be allocated at appropriate times and, for the sake of staff, students and support services, too many simultaneous changes are not involved.

98. An important and obvious improvement which took place during the year was marked by the official opening of the library and chapel on 13 October, by HRH The Duchess of Gloucester. Before the amalgamation in 1981 of the Fire Service Staff College at Dorking and the Fire Service Technical College on the present site, each College had a library which fully met its needs. It was known at the time that an expanded library would be needed and this has now been achieved. The extension also incorporates a small chapel which houses a complete record of British fire service fatal casualties in a book of remembrance.

99. The rapid changes in communications and mobilising equipment have brought an urgent need for better courses for staff concerned with the design, operation and maintenance of the many new types of radio and computer-aided control systems. New courses have been introduced for communications officers which include a contribution from the Directorate of Telecommunications (Scotland) because of the major differences between radio systems and organisation in Scotland and those in England and Wales. The range and content of courses for control room personnel have been revised and are constantly up-dated to keep pace with the changes in technology and equipment which represent a significant challenge to the College.

Brigade Training

100. The increased training time for retained firefighters, agreed by the National Joint Council for Local Authority Fire Brigades and reported last year, has been the subject of study and discussion in all brigades. An increase of 50% in the potential time available for training part-time members of an emergency service represents a valuable opportunity to improve technical knowledge and general effectiveness, but it also has wide implications for each brigade's finances, officer utilisation and training department's preparation, administration and allocation of training resources. Above all, the impact on each individual member of the retained service may be considerable because, in almost all cases, the training is after a full day's normal work and in addition to the continuous commitment to call-out for emergencies. The ability and willingness to undertake additional training of each unit has had to be canvassed and this, coupled with the financial restrictions on local authority expenditure, has led to a slow and piece-meal introduction of the new training regime. Some brigades will add one hour per week to the existing two hours per week only in the summer months when better opportunities for outdoor training can be anticipated. Other brigades are allowing the additional hours to accumulate to organise weekend training sessions and seminars on special subjects which need more sustained instruction which cannot be completed satisfactorily in the normal weekly sessions. In all cases, the financial effect of the change has resulted in a staged introduction and this has allowed other systems of support and preparation to be reorganised to cope with the new requirement.

101. For whole-time members, the main change, coming towards the end of the year in most brigades, has been the formal introduction of regular fitness training whilst on duty. Brigades have a pool of qualified instructors, trained at the Home Office Training Centre at Kirkham Prison, but have been waiting for the Circular of guidance on techniques and systems to be adopted in brigades. When this was issued in April, it gave advice based on the findings of an extensive survey, carried out by Chelsea College of Physical Education under the direction of a Home Office research scientist. This guidance gives a sound basis for a scheme of fitness training at fire stations which, if accompanied by a healthy life-style and regular medical checks, should ensure a fitter, more capable fire service with a reduced risk of injury and premature medical retirements.

Fire Services Examinations Board

102. To obtain qualifications for promotion to a higher rank firefighters are required to be successful in examinations set by the Fire Services Examinations Board. The examinations for promotion to the ranks of Leading Fireman and Sub-Officer have both written and practical elements while the examination for promotion to the rank of Station Officer consists of written papers.

103. In Scotland, three local boards administer both the written and practical examinations for the Fire Services Examinations Board with the practical tests for the Leading Fireman and Sub-Officer examinations taking place in the year following the written examinations.

104. The results of the written examinations are as follows (figures for the previous year are shown in brackets):

<i>Examination</i>	<i>Number of Candidates</i>	<i>Number and Percentage of Passes</i>			
Leading Fireman	293 (236)	117	39.9%	(84)	35.6%
Sub-Officer	172 (169)	45	26.2%	(42)	24.9%
Station Officer	214 (243)	23	10.7%	(15)	6.2%

105. The pass rate for promotion to Leading Fireman and Sub-Officer showed an increase over the previous year of 4.3% and 1.3% respectively. While the percentage of those passing the Leading Fireman examination was fractionally above the GB average of 39.5%, the percentage of those passing the Sub-Officer examination was slightly below the overall average of 27.9%. However, the number passing the Station Officer examination, while up on the previous year, was well down on the overall average of 16.8%. While this is an improvement over last year's performance there would still appear to be scope for improvement.

106. Practical tests for candidates for the Leading Fireman examination took place during March and April and those for the Sub-Officer examination were held during May and June. The results (with equivalent 1987 figures in brackets) were:

<i>Examination</i>	<i>Number of Candidates</i>	<i>Number and Percentage of Passes</i>			
Leading Fireman	110 (83)	81	73.6%	(58)	69.9%
Sub-Officer	69 (97)	38	55.1%	(70)	72.2%

The Institution of Fire Engineers

107. As explained in last year's Report, the IFE is not a part of the statutory promotion examinations, although some of its written examinations are accepted as alternatives to qualification examinations set by the Examinations Board. The Scottish Branch of the Institution continues to be active and well supported by its members and in 1988 there were several particularly good meetings which attracted large audiences. Presentations were given on thermal image cameras and night vision equipment, improved casualty handling and trauma treatment, airport fire services and aircraft crashes, as well as a one-day conference involving fire, police and ambulance speakers on 'Fire and Rescue—Future Trends' which dealt with co-operation in disasters and major incidents. These meetings add considerably to the expertise and technical knowledge of members of the Institution as well as providing a forum for exchanges between members of different brigades and services at all rank levels.

Competitions

108. Each year, national competitions are held in which teams from individual fire stations from all over Great Britain match their knowledge and skills in first aid and firefighting. The Scottish District Final of the First Aid Competition was held at the St Andrews Ambulance Association Headquarters in Glasgow in May and was won by one of the two Strathclyde Fire Brigade teams. The Fire Brigade Technical Quiz takes the form of a competition for whole-time members in alternate years, with a similar competition for retained members in the intervening years. In 1988, the whole-time competition was held and a team from Tayside won the Scottish District Final at Fife Fire and Rescue Service HQ in February. They went on to win the Northern Semi-final held in Staffordshire in March and came third in the Final held at the Fire Service College in August. This is the first time a Scottish team has reached the

National Final since the early seventies and their performance is a credit to the Brigade and gives a boost to Scottish teams who are preparing for future competitions. The form of the quiz, which is organised by the Chief and Assistant Chief Fire Officers' Association and financed by the Fire Service Research and Training Trust, is to be reviewed to bring modern techniques of quiz organisation into the system but the formula has been a valuable means of encouraging study of technical literature for more than 30 years and it remains a popular competition.

Section G Miscellaneous

Scottish Central Fire Brigades Advisory Council

109. At the Council meetings held on 3 June and 9 December, the chair was taken by Mr W K Reid, CB, Secretary, Scottish Home and Health Department. The Council considered reports from the Joint Committee on Fire Brigade Communications, Joint Committee on Appliances, Equipment and Uniform, Joint Committee on Fire Research, Technical Working Group on Special Services and Special Appliances, and the Joint Working Party on Appointments Provisions. The Council also considered papers from the Joint Pensions Committee, Joint Fire Prevention Committee, Joint Committee on Fire Brigade Operations, Joint Training Committee and Joint Working Group on Chernobyl.

110. The Council normally meets twice each year, in June and December, and takes half the Joint Committee Reports at each meeting. This allows an opportunity for full discussion on the items which are summarised in the Reports and for explanations by a member of each Committee on the detail of work carried out during the year. In addition, the Commandant of the Scottish Fire Service Training School presents a Report at the June meeting on the work of the School during the previous year.

Research

111. The Joint Committee on Fire Research based its activities on the Strategic Plan for Fire Research reported last year (paragraph 97). The long-term nature of much of the research and the need to take advantage of parallel research or tests in other countries having a bearing on British research means that a strategic plan is required but that opportunities for quick changes in direction and effort must be available. The scheme has worked well and good progress was made on a number of important fronts.

112. There are two main threads to the Strategic Plan; one is concerned with fire prevention and protection—to minimise or reduce the incidence of fire and its effects—and the other is to help the fire service to improve its effectiveness and efficiency. In both these areas, life safety is always a matter of prime concern. For this reason, human behaviour in fire and the use and effectiveness of domestic smoke alarms figure prominently in future research plans. Equipment for firefighters and studies of health hazards resulting from firefighting are also to be the focus of continuing research and evaluation.

113. Research reports are, of necessity, scientific documents which must be couched in precise, technical language if they are to be of value to scientists, academics and designers and maintain the international status of British research groups. This has caused difficulty in the past because the reports are sometimes difficult to comprehend and are frequently of great length. An attempt to convey the necessary information in a form more acceptable to fire brigade readers has resulted in a series of publications called 'Fire Research News', which set out the results of recent research projects in a brief and simple but accurate way. The articles are well illustrated and attractively designed with an easily-read type face and the booklets have been well received on fire stations. Recent editions have included photographs and personal profiles of research leaders, which helps to humanise a subject which may sometimes seem to be too remote and academic to be of interest to firefighters although research is vital to progress. One of the 1988 editions also gave a step-by-step guide to testing and evaluation within brigades, which will help to instil the important principles of preparation, assessment and reporting used by generations of scientists and engineers and enable brigades to choose the right equipment for their needs.

114. Fire research problems are often illuminated by investigations in other fields and an example of this was the publication in December of a report on the Prevention of Arson. This was the result of the work of an independent working group set up by the Home Office Standing Conference on Crime Prevention, who approached the problem of malicious fire raising from the criminal, rather than the fire aspect. Its findings were, however, of considerable interest to fire brigades, local authorities and insurance companies, all of whom are becoming increasingly concerned by the increase in the number and value of fires which have been started intentionally. The report says that 20% of all fires, 50% of large fires and 50% of insured losses are now due to malicious fire raising with vandalism and revenge—not fraud—being the main motives.

115. Urban schools are among the main targets, so that one school in 37 can expect to be attacked every year. This will inevitably have an effect on children's attitudes to fire and the destruction of public property as well as in disruption to their education. Males between the ages of 14 and 16 are most commonly the culprits, although slightly older males also form a large part of the problem. There is frequently a strong link between alcohol abuse and malicious fire raising, according to the Report and although there has been a marked increase in the number of fire-related crimes, the number of prosecutions has been static.

116. This Report was not based on research in Scotland but all the elements noted in the group's findings are present in equivalent Scottish experience. The group has recommended the setting up of an Arson Bureau at national level to co-ordinate efforts to tackle this problem and the establishment of an Arson Control Programme, so that all the agencies which are increasingly affected will work in a similar way. Parts of this programme which would have an impact on fire services include the provision of improved fire investigation training at the Fire Service College, followed by the introduction of a system of fully-trained fire investigation officers in every brigade. Some brigades have already introduced pilot schemes and are planning to improve their arrangements to investigate the causes of large fires and others which give rise to suspicion.

Civil Defence

117. The Zone Fire Commanders (Designate) and their staff officers have continued with their planning for war-time and peace-time disasters and 1988 saw an unprecedented rise in the number and scale of international disasters involving aircraft, ships and natural phenomena which drew attention to the vital need for preparation and planning by emergency services. The Brigade Emergency Planning Staff Officers also carried on with their preparatory work in writing outline local plans to deal with contingencies and comparing notes with other staff officers and representatives of the Scottish Home and Health Department. There is little publicity for this planning work and its value is appreciated only when normal life is broken by a major tragedy which destroys or renders ineffective the basic services which have become so essential to modern life. Pre-planning for such emergencies in normal times enables a speed of response and co-ordination of action which cannot be matched by *ad hoc* arrangements, but imagination and flexibility are essential to planning if it is to be able to meet any emergency.

Fire Services National Benevolent Fund

118. Brigades in Scotland raised £124,355 for the Benevolent Fund in 1988, the second year in which there has been a substantial improvement over the amount raised in the previous year and the highest total yet recorded. A very wide variety of fund-raising activities have enabled such a creditable total to be achieved and those responsible for organising these events deserve congratulations on their ingenuity, unselfishness and persistence in supporting such a worthwhile cause. Although some fund-raising is organised at brigade level, much of the initiative is local and many retained and volunteer units in remote locations have achieved amazing totals by organising events in their own communities.

119. The total amount raised by brigades in Great Britain was just over one and a half million pounds and when investment income and legacies are added, this gives a total of £2,441,000, an increase of 11.9% over the previous year. Administration costs are kept low, at 5.7% in 1988, and increases in grants and allowances are made

regularly to match changes in the cost of living and the need for additional benefit payments. The Fund is planning a major rebuilding programme for its administration and convalescent facilities at Littlehampton, Sussex and at Harcombe House in Devon, which will make heavy demands on financial resources over the next few years. The Fund has acquired several properties around the original block of flats at Littlehampton and it is necessary to rationalise the complex and improve the facilities there and at Harcombe to meet the needs of handicapped and convalescent members and ex-members of fire brigades.

120. Certificates of Appreciation were awarded by the Benevolent Fund to two men who have a long record of work and achievement for the Fund in Scotland and as Scottish representatives on the National Council. They are Robert Aitken, formerly of Glasgow Fire Service and Strathclyde Fire Brigade, who served as Chairman of the Scottish Group for 11 years, and William Scott, formerly of South Western Area Fire Brigade and now serving in Strathclyde, who continues as Secretary/Treasurer of the Group. Both men have richly deserved the appreciation of the Fund for their dedicated work over many years.

**Fire Services Sports and
Athletics Association**

121. Although there was the usual level of activity in all sports at local, national and international level, there was little success for fire service sports teams from Scotland in representative matches in 1988 except that Scotland beat England at football. A team of swimmers from Highland and Islands Fire Brigade, three whole-time members and one retained, achieved a remarkable second place in the British Fire Service Masters Swimming Championships at Middlesbrough in May. In competition with much larger teams they took 15 medals and were beaten only by Merseyside, one of the larger metropolitan brigades. In its 21st year of operation, the Association is now firmly established as an effective vehicle for firefighting sportsmen to pursue their interests and to bring valuable contacts between brigades and countries in friendly rivalry on the sports field. The important thing is for the maximum number of members of brigades to take an active part in sports activities and, although there is token financial and administrative support from brigades, most of the work to achieve this level of participation is done by the few enthusiasts in each sport who organise the events. There are considerable benefits to individuals who take part, in maintaining their skills and enhancing their fitness, and brigades also benefit by having fitter, more fulfilled members who appreciate the value of teamwork. Those who work to make arrangements for the sports have some reward in seeing the success of their teams and following their favourite pastimes but brigades are indebted to them for the excellent work they do with little recognition.

ESTABLISHMENT AND STRENGTH OF FIRE BRIGADES

as at 31st December 1988

Table 1.

Operational Personnel	CENTRAL		DUMFRIES AND GALLOWAY		FIFE		GRAMPIAN		HIGHLAND AND ISLANDS		LOTHIAN AND BORDERS		STRATHCLYDE		TAYSIDE		GRAND TOTALS	
	Establishment	Actual Strength		Establishment	Actual Strength		Establishment	Actual Strength		Establishment	Actual Strength		Establishment	Actual Strength		Establishment	Actual Strength	
		Male	Female		Male	Female		Male	Female		Male	Female		Male	Female		Male	Female
Firemasters	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8
Assistant Firemasters	1	1	1	1	1	1	2	2	1	1	2	4	5	5	1	1	1	14
Senior Divisional Officers	1	1	1	1	2	2	2	2	5	5	4	1	7	7	5	5	5	11
Divisional Officers Grade I	4	4	3	3	3	3	3	3	3	3	6	8	14	14	8	8	8	14
Divisional Officers Grade II	8	8	3	3	2	2	5	5	11	11	19	19	18	17	14	14	14	39
Divisional Officers Grade III	8	8	9	9	9	9	11	11	10	10	34	34	36	36	17	17	17	40
Assistant Divisional Officers	17	16	36	37	29	29	27	29	9	8	169	165	169	165	37	33	33	42
Station Officers	24	26	28	28	28	28	29	29	7	7	64	64	227	232	36	38	38	115
Sub Officers	32	32	8	8	56	56	42	42	13	13	97	92	278	271	44	44	44	332
Leading Firemen	148	148	60	54	237	237	173	166	48	47	431	433	1,533	1,508	265	259	265	431
Firemen	236	237	99	93	375	375	295	290	95	92	670	661	2,290	2,259	410	401	410	588
Totals	474	415	327	294	474	474	805	749	1,710	1,471	991	939	3,240	3,102	758	690	8,791	8,134
Control Room Staff																		
Prin. F.C. Officers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group F.C. Officers	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Fire Con. Officers	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Sen. Fire Con. Operators	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Lead. Fire Con. Operators	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Fire Control Operators	8	7	10	10	12	12	9	7	8	8	12	11	12	4	9	2	7	15
Totals	17	12	21	14	21	21	18	17	13	13	26	22	67	7	18	3	15	26
Part-time Retained																		
Station Officers	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sub Officers	14	13	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Leading Firemen	17	16	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Firemen	136	131	157	150	74	74	369	336	290	263	233	214	518	480	237	183	2,032	1,831
Totals	170	160	193	187	93	93	460	436	384	354	295	274	649	607	298	248	2,561	2,359
Part-time Volunteer																		
Assistant Divisional Officers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Station Officers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sub Officers	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Leading Firemen	18	13	11	11	11	11	16	16	1,025	833	208	203	208	203	31	37	1,331	1,113
Firemen/Firewomen	24	13	18	11	11	11	25	16	1,218	1,025	234	229	234	229	32	38	1,560	1,341
Totals	24	13	20	13	11	11	32	23	1,218	1,025	234	229	234	229	32	38	1,560	1,341
WHOLETIME CONTROL ROOM																		
CONTROL ROOM	263	237	99	93	375	375	295	290	95	92	670	661	2,290	2,259	410	401	4,475	4,408
PART-TIME RETAINED	17	5	15	11	6	6	18	17	13	13	26	22	67	7	18	3	195	167
PART-TIME VOLUNTEER	170	160	193	187	93	93	460	436	384	354	295	274	649	607	298	248	2,561	2,359
Totals	24	13	20	13	11	11	32	23	1,218	1,025	234	229	234	229	32	38	1,560	1,341
GRAND TOTALS	474	415	327	294	474	474	805	749	1,710	1,471	991	939	3,240	3,102	758	690	8,791	8,134

CHANGES IN WHOLETIME STRENGTH AS AT 31st DECEMBER 1988

Table 2

	Operational Personnel																		Control Room Personnel																		
	CENTRAL		DUMFRIES AND GALLOWAY		FIFE		GRAMPIAN		HIGHLAND AND ISLANDS		LOTHIAN AND BORDERS		STRATHCLYDE		TAYSIDE		TOTALS		CENTRAL		DUMFRIES AND GALLOWAY		FIFE		GRAMPIAN		HIGHLAND AND ISLANDS		LOTHIAN AND BORDERS		STRATHCLYDE		TAYSIDE		TOTALS		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
GAINS																																					
(i) By recruitment	12	3	—	22	—	35	—	2	—	18	—	120	—	11	—	223	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(ii) By transfer from other brigades	1	—	—	2	—	1	—	—	—	—	—	3	—	1	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total gains	13	3	—	24	—	36	—	2	—	18	—	123	—	12	—	231	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
LOSSES																																					
(i) By death:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Attributable to service	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Not attributable to service	1	—	—	—	—	—	—	—	—	3	—	1	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(ii) By discharge	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(iii) By resignation:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
During 1st or 2nd year of service	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
After 2nd but under 10 years service	1	—	—	—	—	—	—	—	—	1	—	7	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
After 10 years service	1	—	—	—	—	4	—	—	—	1	—	3	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(iv) By retirement:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
On pension	1	—	—	4	—	1	—	3	—	3	—	23	—	5	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
As a result of over 40 medical grounds	—	1	—	—	—	—	—	—	—	—	—	2	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Medical other than over 40	3	1	—	10	—	2	—	—	—	8	—	33	—	—	—	57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
On transfer to other brigades	1	—	—	4	—	—	—	—	—	2	—	3	—	1	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Total losses	9	2	—	18	—	7	—	3	—	18	—	81	—	6	—	144	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

SUMMARY OF FIRES AND SPECIAL SERVICES WHICH HAVE OCCURRED 1988

Table 3

	Total Fires	Classification of fires by number of pumps used for firefighting purposes:						Chimney Fires	Secondary Fires	False Alarms			Special Service	Total
		(a) 1 pump	(b) 2 pumps	(c) 3/5 pumps	(d) 6/10 pumps	(e) 11/15 pumps	(f) Over 15			Good Intent	Apparatus Fault	Malicious		
Central	839	692	129	17	1	—	—	468	651	547	420	655	178	3,758
Dumfries and Galloway	418	241	161	15	—	—	1	425	174	338	76	202	205	1,838
Fife	1,134	1,109	18	7	—	—	—	559	840	739	443	780	303	4,798
Grampian	1,391	1,233	100	55	3	—	—	1,161	745	812	298	507	413	5,327
Highland and Islands	721	602	82	37	—	—	—	1,690	546	506	112	223	304	4,102
Lothian and Borders	3,654	2,472	643	537	2	—	—	749	2,795	2,585	902	2,485	754	13,924
Strathclyde	9,210	8,246	804	147	11	2	—	2,099	10,224	6,587	4,335	7,560	2,881	42,896
Tayside	1,595	1,470	113	12	—	—	—	556	1,648	811	513	518	466	6,107
Total	18,962	16,065	2,050	827	17	2	1	7,707	17,623	12,925	7,099	12,930	5,504	82,750

FATALITIES (Listing Age Groups and Locations) during 1988

Table 4

BRIGADE	Age Groups								Location—Dwellings						Location Other Buildings					Misc.
	Up to 5 years	6 to 10 years	11 to 20 years	21 to 40 years	41 to 60 years	Over 60 years	Total Fatalities	Flat—including Terrace/Tenement	Bungalow—Semi or Detached	Maisonette	Standard Dwelling	Other Dwellings	Hospitals—Homes—	Hotels and Boarding Houses	Caravans	Vehicles	Industrial or Commercial Premises	Open		
																			Jan.	
Central	—	2	1	1	—	7	11	2	—	—	8	—	—	—	—	—	—	1	—	
Dumfries and Galloway	—	—	—	—	1	6	7	—	5	—	2	—	—	—	—	—	—	—	—	
Fife	1	—	2	2	—	6	11	8	—	—	2	—	—	—	—	—	1	—	—	
Grampian	—	—	—	5	1	6	12	7	—	—	2	—	—	—	1	—	—	—	2	
Highland and Islands	—	—	1	3	1	4	10	2	4	—	3	—	—	—	—	—	—	—	—	
Lothian and Borders	6	—	1	9	3	7	26	3	1	2	18	—	—	—	—	—	—	—	1	
Strathclyde	7	3	1	9	14	35	69	44	—	6	15	1	—	—	—	—	—	—	—	
Tayside	—	—	—	—	—	4	4	2	2	—	—	—	—	—	—	—	—	—	—	
Totals	14	6	6	29	20	75	150	68	12	8	50	1	—	—	2	3	1	2	3	
Fatalities by Month																				
Central	—	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dumfries and Galloway	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	
Fife	1	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	
Grampian	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Highland and Islands	1	4	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lothian and Borders	2	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	
Strathclyde	1	—	1	—	4	10	—	2	—	3	2	—	—	—	—	—	—	—	—	
Tayside	4	6	4	13	10	5	3	—	6	8	—	—	—	—	—	—	—	—	—	
Totals	11	13	7	16	18	23	4	9	3	10	19	1	—	—	4	—	—	—	—	

N.B. Fatality figures exclude Pan-Am aeroplane crash in December 1988. 11 persons on the ground were killed and 259 passengers in the plane.



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