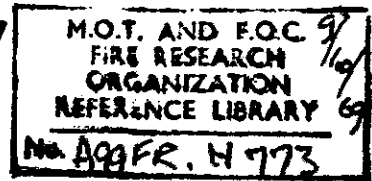


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Fire Research Note

No. 773

**WORCESTER CITY AND COUNTY:
EFFECT OF FIREMEN'S ADVICE SCHEME ON
DWELLING FIRE FREQUENCY**

by

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SUMMARY

For an area where firemen carry out a house-to-house visiting scheme, the relative frequency of fires in dwellings is compared with the national average. Over ten years a reduction of one third appears to have been achieved.

KEY WORDS: Brigade, British, cost-benefit, domestic,
economics, fire prevention.

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INTRODUCTION

In 1957, operational firemen of Worcester City and County Fire Brigade began making continuous house-to-house canvasses, to offer fire prevention advice to those householders who were willing to receive it.

This form of fire prevention education is still relatively unusual in the United Kingdom, so fire statistics for the last few years have been examined to see whether the frequency of fires in dwellings in Worcester City and County appears to have been decreasing relative to that for the whole of the United Kingdom. Population has been taken as the standard of comparison.

METHOD

Operational background

Appliances from all whole time stations in the area are used for the visits. While one crew member remains on radio watch, to recall his colleagues when an emergency call is received, the remainder distribute to each residential property a leaflet giving comprehensive fire prevention advice, together with an explanatory letter from the Chief Officer.

The houses are subsequently visited by the firemen, and any points arising are discussed. An invitation to enter is received at about a quarter of the houses. From time to time the firemen receive professional training in methods of offering advice.

Administrative arrangements vary according to the station, but typically two afternoons a week might be spent on visiting activities. About five years are required to cover any given neighbourhood, and the procedure is then repeated.

Fire statistics

The figures used are the published ones for "fires in dwellings". These are produced by the Joint Fire Research Organization from reports made out by local authority fire brigades.

A few minor sources of inconsistency exist, and have been neglected:-

1. Fires in chimneys, if confined to the chimney, are not reported to the Joint Fire Research Organization. There is some looseness in the definition of "confined to chimney".

2. Fires in farmhouses, residential institutions and caravans are not included in "fires in dwellings".
3. For most years, reports were analysed by the Joint Fire Research Organization on a sample basis. Since the annual number of "fires in dwellings" in Worcester City and County is of the order of 250, the published figures are subject to appreciable random sampling variations.
4. It is fairly arbitrary whether a fire brigade receives information about, and therefore makes a report on, a fire that it is requested to attend after it has been extinguished (a "late call"). Late calls are included in the published figures.
5. Because of a change of definition the published figure for "fires in dwellings" in 1966 is not comparable with those for other years; the 1967 figure, however, is comparable with those for 1965 and earlier years.

Population statistics

Figures used were for the total estimated mid-year population of the two administrative areas served by the fire brigade. The two areas are the city of Worcester (a county borough) and the administrative county of Worcestershire.

The figures are produced by the Registrar-General for England and Wales.

Boundary change

From 1st April 1966, the area of the administrative county of Worcestershire was reduced, the non-county borough of Oldbury becoming part of the new county borough of Warley (served by its own fire brigade). There was a corresponding reduction of about 10 per cent in the population served by the Worcester City and County Fire Brigade.

The fire statistic shown for 1966 represents the fires occurring within the boundaries as they existed at the date of occurrence of the fire, and the population statistic is a weighted average of the mid-year populations of the area as constituted before and after the change.

STATISTICS

Table 1

Fires in dwellings and population; Worcester City
and County and United Kingdom

	Worcester City and County		United Kingdom	
	Fires in dwellings	Population (000)	Fires in dwellings	Population (000)
1956	232	481.2	24468	51208
1957	203	486.8	22767	51456
1958	220	492.3	24332	51680
1959	228	495.5	26640	51985
1960	256	501.0	27632	52383
1961	244	510.4	29802	52777
1962	266	517.4	32510	53341
1963	330	524.1	37602	53678
1964	258	532.6	35092	54066
1965	<u>274</u>	<u>540.9</u>	34549	54440
1966	<u>239</u>	<u>506.8</u>	34251	54744
1967	236	500.0	38942	55068

A ratio derived from Table 1 is illustrated in
Fig. 1.

Table 2

Difference between number of fires in dwellings
in Worcester City and County and that expected
from United Kingdom incidence per head of population

	<u>Expected from U.K. incidence</u>	<u>Actual</u>	<u>Difference (Expected - Actual)</u>	<u>Cumulative difference</u>
1956	230	232	- 2	- 2
1957	215	203	12	10
1958	232	220	12	22
1959	254	228	26	48
1960	264	256	8	56
1961	288	244	44	100
1962	315	266	49	149
1963	367	330	37	186
1964	346	258	88	274
1965	<u>343</u>	<u>274</u>	69	343
1966	<u>317</u>	<u>239</u>	78	421
1967	354	236	118	539

The last column in Table 2 is illustrated
in Fig. 2.

DISCUSSION

Before the systematic visiting scheme began in Worcester City and County in 1957, the area appears to have had very nearly the same frequency of fires in dwellings, in relation to its population, as the United Kingdom.

After ten years, when most houses in the area had twice been approached personally by the fire service, and about a quarter of the occupiers had shown some positive interest in accepting fire prevention advice, the relative frequency in the area had fallen to about two thirds of the national average (Fig. 1). About 500 fires which would otherwise have occurred appear to have been prevented (Fig. 2).

There are reasons why this gratifying conclusion should be treated with a little reserve. Fires vary in size, and no account has been taken of fire size. Also, fires are not only a function of the total population of an area, but of its age distribution and social conditions. It would be conceivable, for example, for the proportion of houses in Worcester City and County equipped with central heating to have gradually departed from the national average, so that part of the apparent effect was because of a reduction in the number of open fires. Information about this, and innumerable other factors, would be required before the apparent reduction in fire frequency could be attributed with almost complete certainty to the advice scheme.

However, the reduction is reassuring. Five hundred fires of this type might well have cost the community a quarter of a million pounds, in one way or another, and, if they really have been prevented by the householders accepting the firemen's advice (and/or reading the leaflet distributed), the saving seems quite likely to have exceeded the cost of offering the advice.

This cost would be difficult to estimate, since it would be necessary to evaluate the alternative use that would be made of the firemen's time. If this is costed at its average value (the most pessimistic assumption) the annual cost of carrying out the visits might be say 5 per cent of an annual wage bill of £200 000, or about £10 000. If the alternative "use" is merely an unnecessary activity to fill in time, the cost would be virtually nil; while if carrying out the visits has a positive effect on staff morale, the "cost" is in fact an additional benefit.

It may be significant that the departure from the national trend in Worcester City and County is at an increasing rate, as though the short term effect of the second round of visits was two or three times that of the first round. This would not be unexpected, because the firemen would have gained experience in the techniques of giving advice, and the householders would have become accustomed to the principle of having it offered.

CONCLUSIONS

In an area where most householders have twice been approached by the fire service and offered fire prevention advice, the relative frequency of fires in dwellings appears as a result, over a period of ten years, to have been reduced by one third from the national average.

ACKNOWLEDGEMENTS

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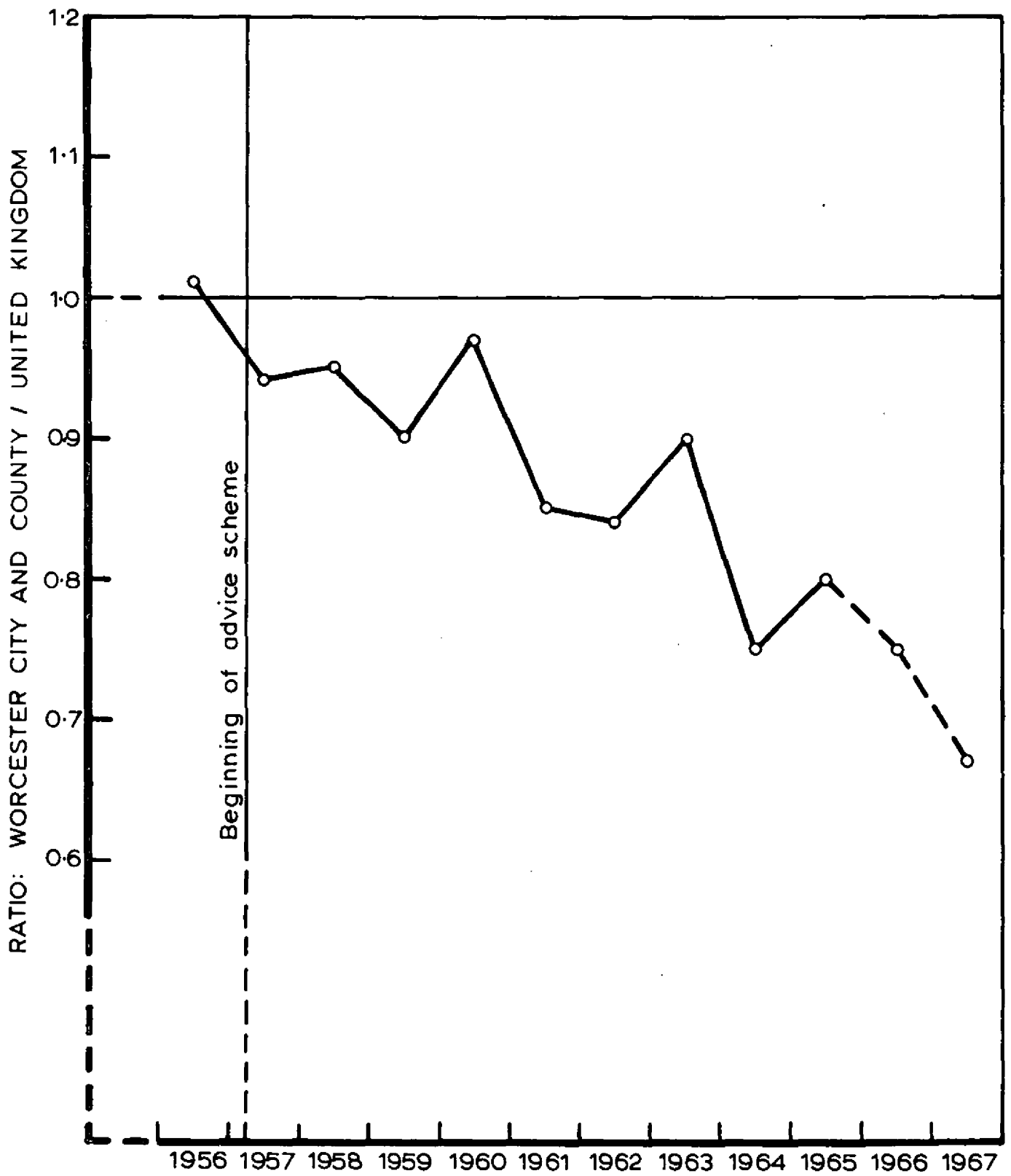


FIG.1. FIRES IN DWELLINGS PER HEAD OF POPULATION: WORCESTER CITY AND COUNTY AND UNITED KINGDOM

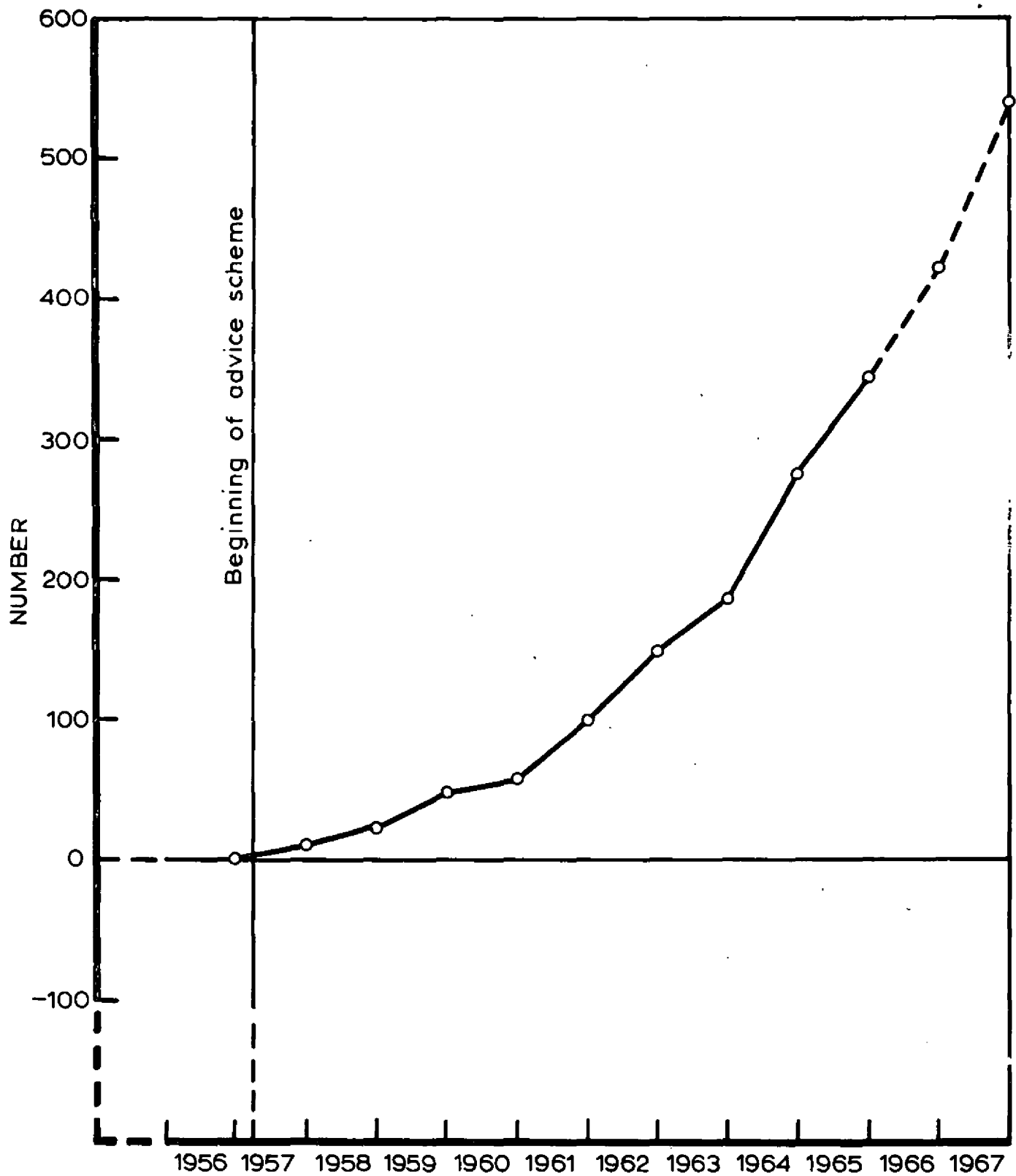


FIG. 2. FIRES IN DWELLINGS IN WORCESTER CITY AND COUNTY APPARENTLY PREVENTED BY ADVICE SCHEME BY GIVEN DATE

