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MAKE LEICESTER FIRE-SAFE CAMPAIGN:
FALSE ALARM STATISTICS

by

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SUMMARY

False alarm statistics are examined for a period before and after a fire prevention campaign. Random variations make it difficult to see any effect, although there is a suggestion that false alarm calls from automatic detection systems may have decreased.

Key Words: correlation, false alarm, fire prevention, publicity, statistics, time series.

MINISTRY OF TECHNOLOGY AND FIRE OFFICES' COMMITTEE
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INTRODUCTION

An intensive generalised fire prevention campaign, lasting four weeks, was held in Leicester in 1967. In a note* the frequency and size of fires in dwellings attended by the fire brigade were examined for any discernible effect.

Such a campaign might have been expected to influence also the frequency of false fire alarms. As in the previous note, a comparison has been made with the experience of Nottingham, a similar city unlikely to have been affected by the campaign.

TYPES OF FALSE ALARM

Calls to a "fire" where no fire exists are received by a fire brigade in three fairly standard situations:-

1. Malicious - when the caller knows that there is no fire. It is not obvious whether one would expect a broadly-based fire prevention campaign to encourage or to deter a prospective caller from indulging in this annoying practice.

   In either case, it is a reduction in frequency that would be regarded as a beneficial effect.

2. With good intent - when the caller believes that there is a fire, perhaps because of the unusual appearance of smoke or steam.

   Because this would seem to indicate a readiness to call the fire brigade at an early stage in the development of a real fire, an increase in the frequency of this type of call would be regarded as beneficial.

3. Arising from technical defects - where the "caller" is an automatic system. Apart from the occasional possibility of malicious interference, this is really a variety of the call made "with good intent" - with which it is sometimes combined for statistical purposes.

   It may arise from some mechanical or electrical failure, or, less avoidably, from the economic necessity to set an upper limit of sensitivity to operation by cigarette smoke etc and a lower limit to operation by a real fire.

   Since the automatic system itself can hardly respond to publicity, the only beneficial effect that might be looked for from a fire prevention campaign would be a reduction in the frequency of false alarms because the owners had been persuaded to have their systems better maintained.

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* not yet allocated.

GRAPHS

For Leicester and the "control" area of Nottingham, the frequencies of false alarms of all three types are compared as a ratio of 3-month moving totals in Fig. 1.

A measure of "goodness of intent" is provided by the ratio of false alarms with good intent to malicious ones. This ratio is illustrated (again as a comparison with Nottingham) in Fig. 2.

Monthly statistics for false alarms arising from technical defects are shown separately for the two areas in Fig. 3.

DISCUSSION

Fig. 1 indicates that the random variation in the frequency of false alarms given by human beings, whether maliciously or with good intent, would conceal any but a dramatically large effect of the campaign.

There is a rather unexpected suggestion of a reduction in the frequency of false alarms from automatic detection systems, up to eight months after the campaign. Fig. 3 shows that this apparent reduction was as much due to an increase in Nottingham as a decrease in Leicester, so no real conclusion is possible.

Fig. 2 shows that the measure of "goodness of intent" varies so much by reason of the small numbers involved that no campaign effect can be measured.

CONCLUSIONS

An intensive generalised fire prevention campaign does not seem to have had a discernibly large effect on the tendency of people to call the fire brigade when no fire exists - whether the call is made maliciously or with good intent.

About eight months after the campaign the frequency of false alarms from automatic fire detection systems reached an unusually low level, although this may well have been coincidence.

REFERENCE

Chambers, E. D. "Make Leicester Fire-safe Campaign : Statistics of Fires in Dwellings". Ministry of Technology and Fire Offices' Committee Fire Research Note No. * Boreham Wood, 1969.

ACKNOWLEDGMENTS

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*Not yet allocated

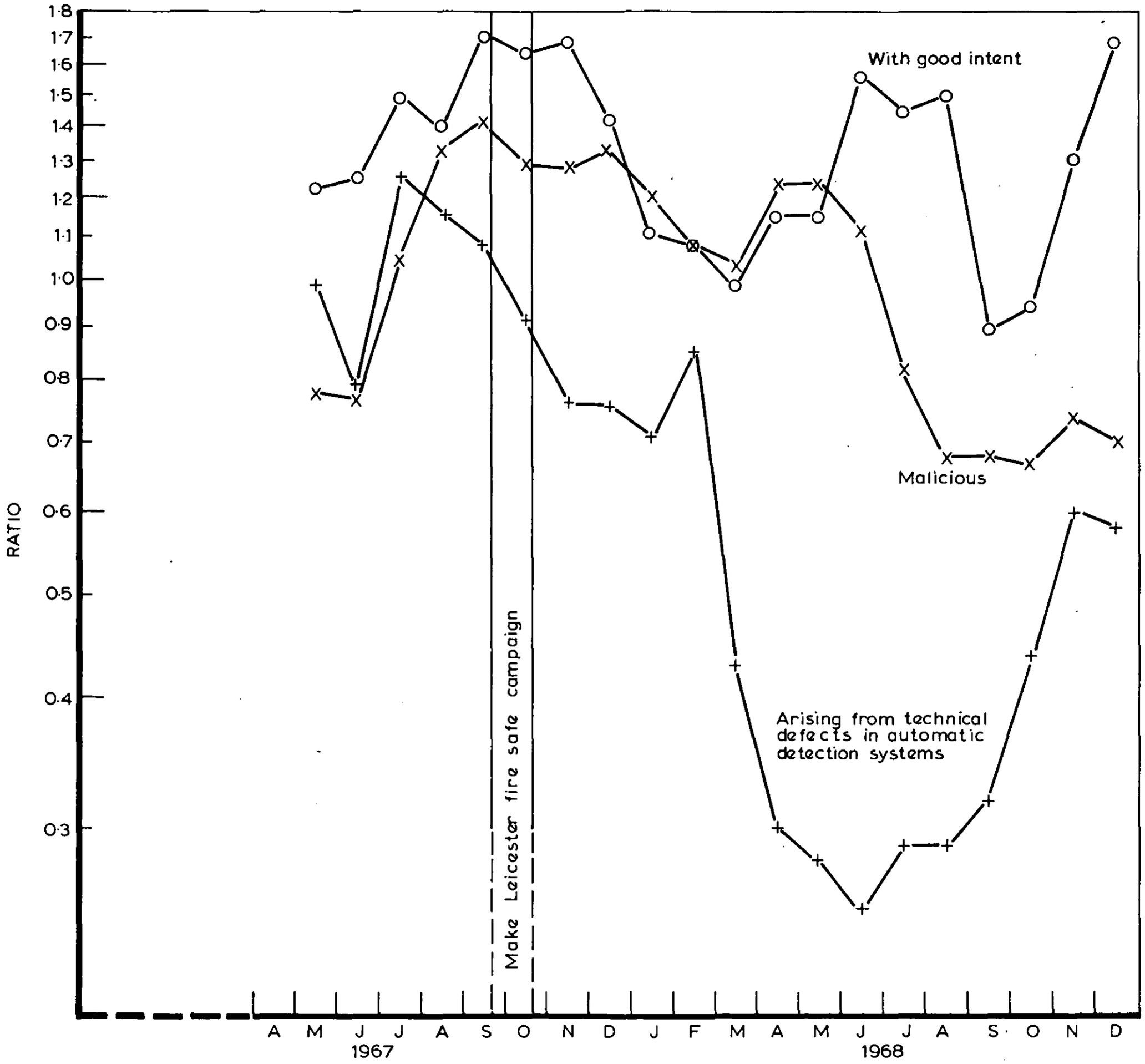

FIG. 1. FREQUENCIES OF FALSE ALARMS OF FIRE RECEIVED BY FIRE BRIGADES (3-MONTH TOTALS): RATIO, LEICESTER / NOTTINGHAM

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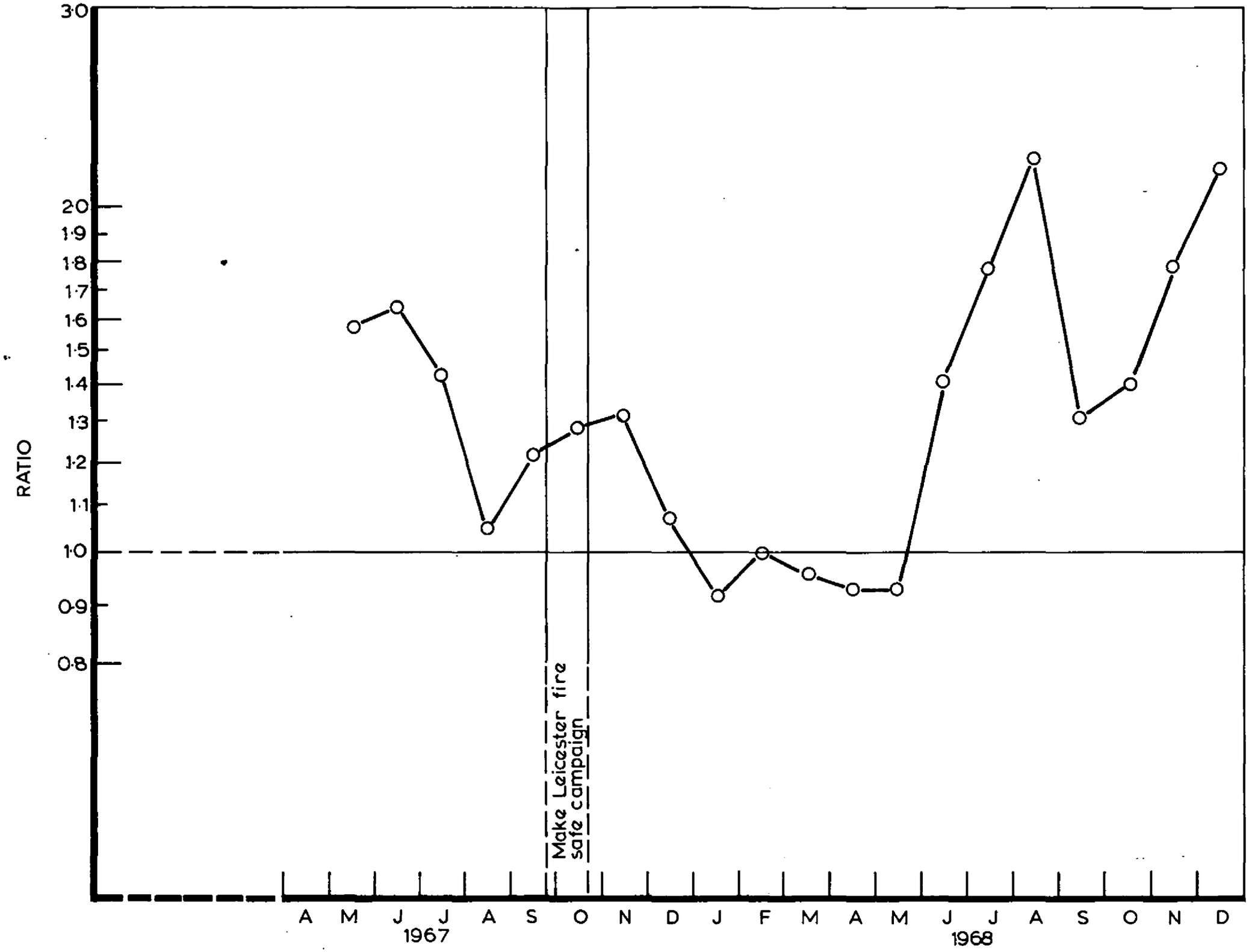

FIG. 2. FREQUENCIES OF FALSE ALARMS OF FIRE: RATIOS, GOOD INTENT / MALICIOUS (3-MONTH TOTALS): RATIO, LEICESTER / NOTTINGHAM

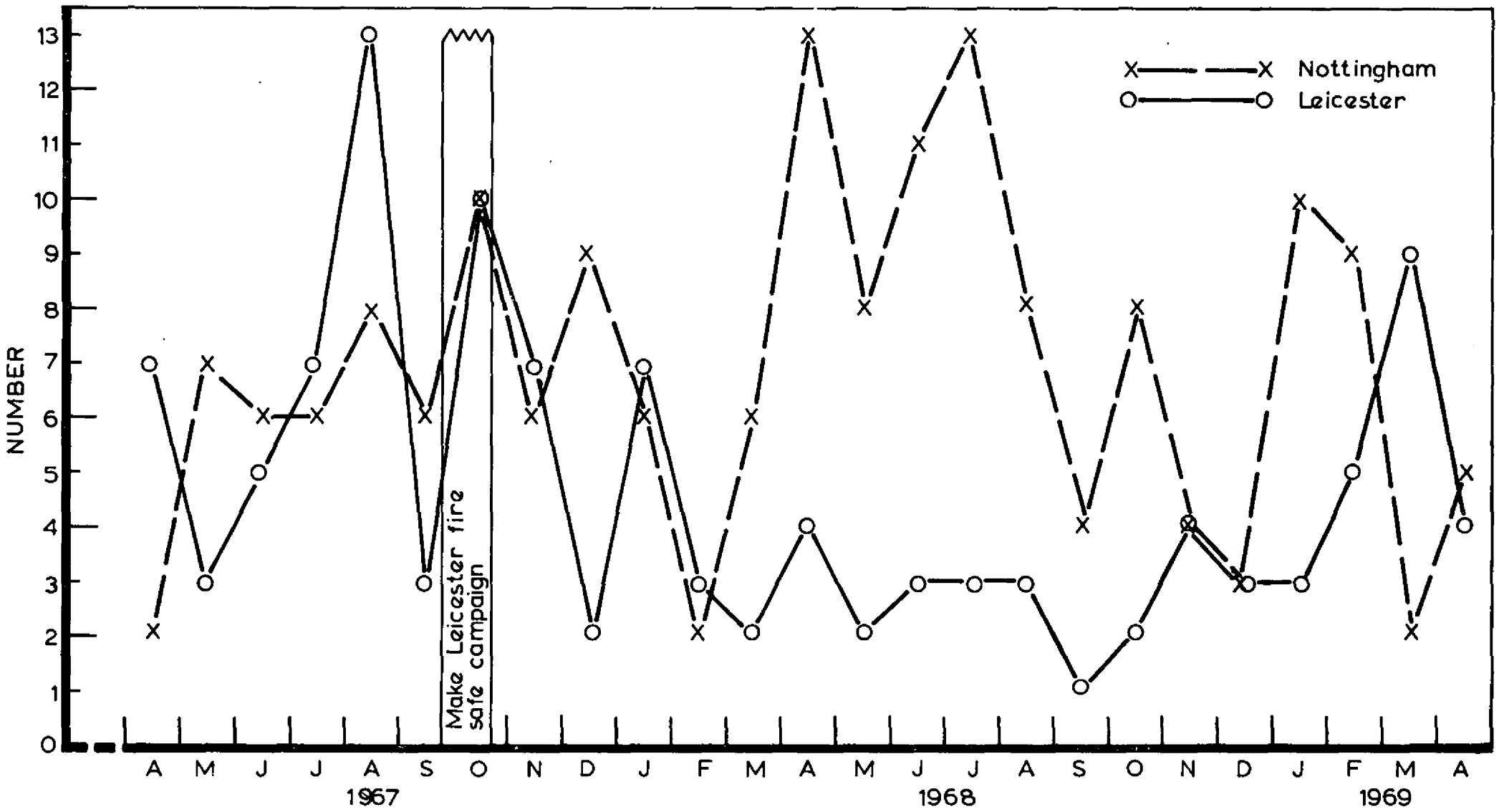

FIG.3. FREQUENCIES OF FALSE ALARMS OF FIRE RECEIVED BY FIRE BRIGADES FROM AUTOMATIC DETECTION SYSTEMS. LEICESTER AND NOTTINGHAM