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FIRE DEATHS IN THE PROVINCE OF ONTARIO, 1955

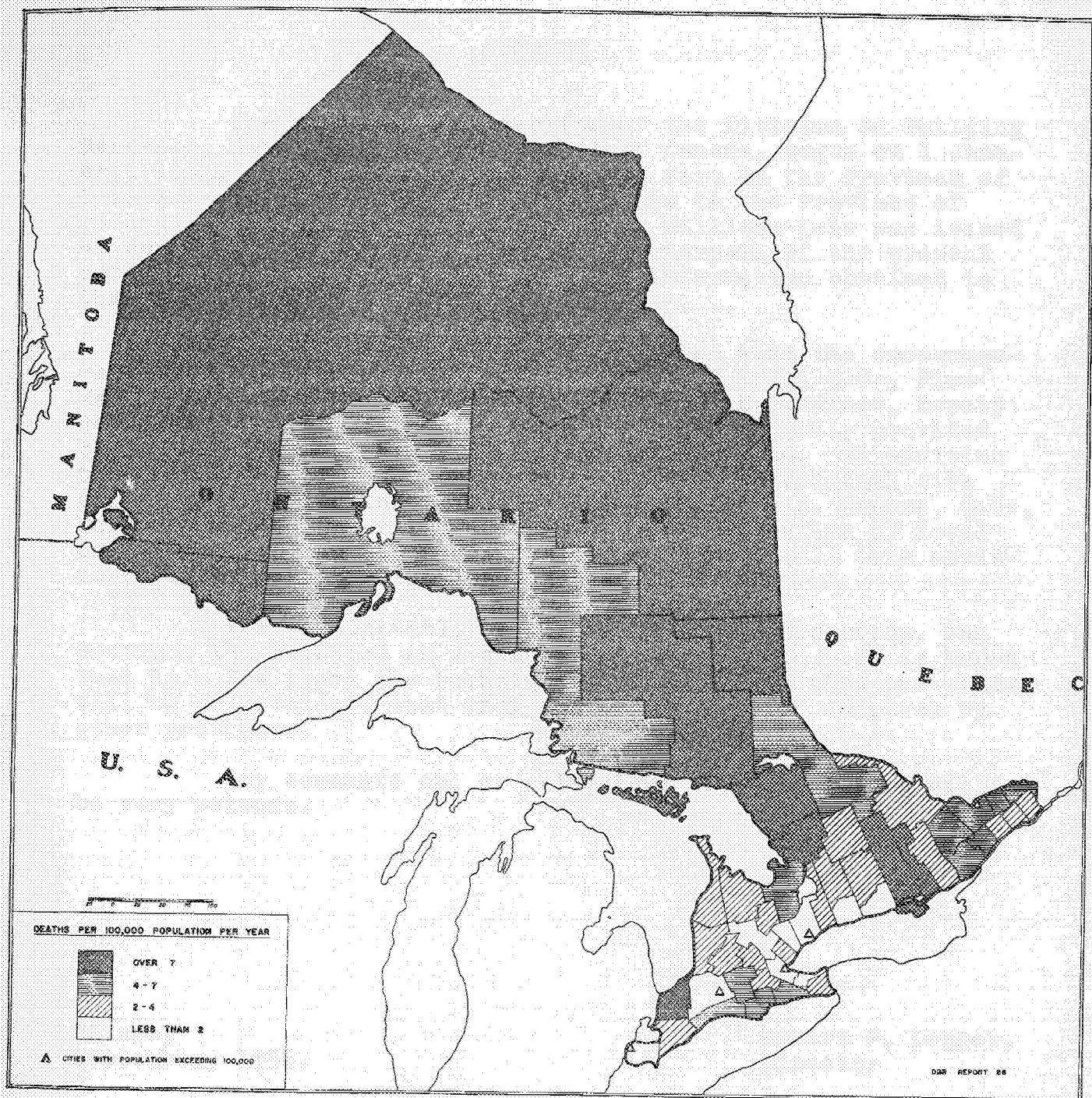
by  
G. Williams-Leir

ANALYZED

Report No. 86  
of the  
Division of Building Research

OTTAWA  
September 1956

10816347



ONTARIO FIRE DEATH RATE 1954-5

## PREFACE

The Fire Research Section of the Division of Building Research, National Research Council of Canada, began on 1 January, 1954, a study of deaths caused by fire in the Province of Ontario. The first report, "Fire Deaths in the Province of Ontario, 1954" by G. W. Shorter and G. Williams-Leir was issued as Report No. 72 of the Division. The purpose of the present report is to record statistically the information obtained in the second year of the study.

This investigation was undertaken with the encouragement and co-operation of Mr. W. J. Scott, O.B.E., Q.C., Fire Marshal of the Province of Ontario. Mr. R. B. Wallace, Deputy Registrar-General of the Province of Ontario, kindly provided the co-operation of his Vital Statistics Section. In addition to these provincial authorities, a great many municipal fire officials supplied information. Through Mr. C. R. Magone, Q.C., Deputy Attorney General of Ontario, the co-operation of local coroners and Crown attorneys was obtained. For all this assistance the Division of Building Research is grateful.

For the initial, or pilot, stage of this study, one province was selected as a sample of the Dominion. It is hoped that in a few years the techniques used in conducting the study will be so developed that they can be offered for adoption by other provinces.

Any comments on, or criticisms of, this report will be very welcome.

Ottawa,  
September, 1956.

Robert F. Legget,  
Director

## FOREWORD

Fire deaths in Ontario in 1955 are studied and compared with the fire deaths there which occurred in 1954. Fire deaths of infants, deaths due to ignition of clothing, and other fire deaths are each treated separately.

Fire deaths are shown to be more numerous in relation to population in the northern part of the province and less so in the cities. Their variation with time of year, day of week, hour of day, and age of victim, is explored.

The distribution of fire deaths between different classes of municipality and the effect of the presence, or otherwise, of a fire department are discussed.

It is shown that more fire deaths occur in residences than in all other occupancies together. The effect of overcrowding of dwellings and of the nature of their wall and ceiling finish is discussed.

Fire deaths of infants are shown to be principally due to absence of, preoccupation of, or injury to, the person responsible for the infant.

The sources of ignition in clothing fires are tabulated.

The majority of building fire deaths were due to the victims being asleep until it was too late to escape or to their being trapped by fire.

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# FIRE DEATHS IN THE PROVINCE OF ONTARIO, 1955

by

G. Williams-Leir

The previous report, "Fire Deaths in the Province of Ontario, 1954" (1), was intended to initiate an annual series. The present report is the second of that series.

The system of classifications, definitions, and general principles used in a survey of this kind must necessarily be set up before starting to analyse each year's fire reports. It is convenient to compile a coding manual from which to work and the merit of the survey must depend heavily upon the efficiency of this coding manual. Experience gained in each annual survey should result in improvement of the coding manual and consequently of the next survey. A small, and entirely justified, price to pay for this advance is that occasionally it will not be possible to compare a particular table in one report with the corresponding one in the previous issue.

Wherever in the present report comparison between 1954 and 1955 results is possible, comparative figures are given. In the tables the 1954 figure is given in brackets after the 1955 figure. On the graphs the mean for 1954 and 1955 is shown as a full line, 1955 alone being a dotted line.

## SCOPE OF INQUIRY

This is unchanged from the 1954 Report. The deaths which have been regarded as fire deaths, and thus taken into account in this survey, have been those which the International Statistical Classification (2) places under the following headings:

E 916      Accident caused by fire and explosion of combustible material.

They are usually sub-classified under the headings:

N 940 - N949    Burns  
                 or  
N 968            Poisoning by carbon monoxide  
                 or  
N 969            Poisoning by other gases and vapours  
                 (including asphyxia)

## SOURCES OF INFORMATION

As in 1954 the primary sources of information have been the Vital Statistics Section of the Ontario Registrar-General's Office and a newsclipping service. On learning from one of these sources, or elsewhere, of a fatal fire, forms are sent to the fire chief of the municipality concerned, or, if there is no fire department, to the local police officer, who is requested to report the particulars of the fire.

The Vital Statistics Section report on every fire death; that is to say, a death is not treated as a fire death unless it is reported by the Vital Statistics Section. In 15 cases this report was the only one received. In a further 9 cases it was amplified by a newsclipping only. In 62 cases the Vital Statistics Section report was amplified by reports from a fire chief, or a police officer, or both, with or without a newsclipping.

In 60 further cases the Vital Statistics Section report was amplified by the report of a representative of the Ontario Fire Marshal's Office, with or without a fire chief's report or a police report or a newsclipping. In the remaining 25 cases the Vital Statistics Section report was supported by one prepared by the staff of the Fire Research Section, Division of Building Research, National Research Council, with or without other reports.

Summing up: in 50 per cent of fire deaths a thorough investigation has been made by an officer experienced in reporting on fires, and his findings have been used in this survey; in 36 per cent there has been a report made superior to a newsclipping (that is, for the purposes of statistical analysis); while in the remaining 14 per cent only a brief formal report or a newsclipping have been available.

This survey would have been a total failure without the co-operation of the various bodies mentioned, to whom acknowledgment is here made.

Improved report forms came into use early in 1956. Experience gained in 1954 and 1955 has led to major changes in the forms.

Use has frequently been made of the 1955 Municipal Directory (3) and of "Municipal Fire Departments in Ontario, 1955"(4).

## PRIMARY CLASSIFICATION OF FIRE DEATHS

The questions which it is appropriate to ask in order to ascertain the reasons for a fire death vary according to circumstances. Thus, questions about building construction are irrelevant when the death is due to a clothing fire; and questions



about clothing are irrelevant when the essential reason for a child's death in a fire is that he was too young to look out for himself.

Accordingly all fire deaths have been grouped for the purpose of this report under three headings:

- I Infant fire deaths (children under 5)
- C Clothing fire deaths (victim aged 5 or over)
- B Building fire deaths: a group which includes all fire deaths not fitting the definitions of I and C -- even if they occur outdoors, which is a rare event.

The initials I, C and B will be used as abbreviations throughout the report without further explanation.

One indication tending to show that infant fire deaths are a group for which separate treatment is appropriate is the sudden drop in fire deaths at about age 5 (Fig.1).

### FATAL FIRES

The 171 fire deaths reported on resulted from 115 fatal fires. Throughout the report (except in one table) the unit of comparison used is the fire death rather than the fatal fire; this course is considered to give the most appropriate distribution of emphasis.

### FIRE DEATH RATE

The "Fire Death Rate" or "FDR" is defined for the purpose of this report as the number of fire deaths per 100,000 population at risk per 12 months. The abbreviation FDR will be used throughout the report without further explanation.

### GEOGRAPHICAL DISTRIBUTION OF FIRE DEATHS

The frontispiece map shows the incidence of fire deaths across Ontario in relation to the population. The fire death rate has been computed by counties and districts, except that in several cases adjacent counties or districts have been grouped in such a way that no group has a population less than 50,000 (since in groups smaller than this the FDR is unduly influenced by a single fatality).

From the map it may be seen that the incidence is higher in northern Ontario. All the districts (i.e. from Muskoka and Nipissing northwards) have FDR's exceeding 4, and most exceed 7. By contrast the counties of southern Ontario generally have FDR's less than 4. The presence of a large city tends to bring the FDR down further, so that among the five cities exceeding 100,000 population, four lie in counties with FDR's less than 2.

It would be rash to draw conclusions regarding any single county from just two years' experience, since a single fire in which five or six lives are lost may carry the FDR for one of the less populous counties or groups from "less than 2" to "over 7".

An alternative method of bringing out the same points is explored in Table 1, which shows that over the two years the FDR for the four cities as a group was 1.7, while for the remainder of the counties (i.e. southern Ontario generally) it was 3.3, and for the districts (i.e. northern Ontario from Muskoka and Nipissing northwards) it was 7.9.

In the 1954 Report (1) an attempt was made to relate incidence of fire deaths to density of population. A few errors in the data used have been found since, but the general conclusion that in sparsely populated areas "the fire death rate may be about three times as great as in the larger cities" is now seen to be an understatement.

#### PRIMARY CLASSIFICATION OF MALE AND FEMALE VICTIMS

Table 2 shows how male and female victims are distributed between the three primary classifications.

The preponderance of male over female victims in 1954 was not found in 1955.

#### CHRONOLOGICAL DISTRIBUTION OF FIRE DEATHS

Figures 2, 3 and 4 show the dependence of fire death rate on time of year, day of week, and time of day.

The worst months for fire deaths now appear to be May and November, and the lowest rate is in September. Saturday is the worst day of the week and Tuesday the best. The hourly curve shows pronounced peaks between 1 and 2 a.m., 8 and 9 a.m., and 10 and 11 p.m.

## FIRE DEATHS BY AGE OF VICTIM

When the incidence of death by fire is examined in relation to the age of the victim, it is found that there is more than one way of presenting the results instructively. If the FDR for each age group is calculated and plotted against age (Fig. 5) it is seen to be low between ages 10 and 55, and to rise steeply at each end of this range.

A moment's thought, however, will convince the reader that what has been said in the last sentence about fire deaths is almost equally true when applied, instead, to deaths generally, regardless of their cause. Consequently it is interesting to compute the ratio which fire deaths bear to all deaths and examine the variation of this ratio with age. Unfortunately the data for 1955 are not yet available, so that Fig. 6 is based on 1954 figures only, for all deaths, but on the mean of 1954 and 1955 for fire deaths.

The curve suggests that fire is most serious, as compared to other causes of death, for the age group from 5 to 15 years. This should be taken with some reserve, since the death rate from other causes is at its lowest in this group. The high ratio is a ratio of small quantities and consequently is sensitive to small variations in either.

When calculated for the sexes individually, the ratio of fire deaths to all deaths is found to be three times as high, in the age range of 5 to 19 years, for girls as it is for boys. This disproportion is however due more to the lower number of deaths of girls generally (262 girls against 498 boys, for 1954) than to the higher fire deaths (27 girls against 17 boys, for 1954 and 1955 together).

Nevertheless some firm conclusions can be drawn from Fig. 6. For instance, fire deaths are less than 1 per cent of all deaths for all ages over 40, regardless of sex. This suggests that once an individual has passed 40, the odds against his eventual death being due to fire are at least 100 to 1; and after 55 they are 400 to 1.

## ONTARIO MUNICIPAL ORGANIZATION

The entire Province of Ontario is divided into counties and districts, the counties lying to the south and comprising that small fraction of the Province which is fully settled. Each county is entirely divided into townships, which are therefore, in general, rural areas. The urban areas are incorporated into cities, towns, villages, etc. Only a small part of the districts has been incorporated into townships, though boundaries and names exist for townships not yet incorporated.

Any municipality has authority to set up a volunteer or a full-time fire department, either individually or jointly with other municipalities. Alternatively it may contract with another municipality to have fire protection furnished to it. A few municipalities own fire-fighting equipment but contract with another municipality to operate it. Most urban areas have protection in one or other of these ways, but a large number of townships have none at all.

### INFLUENCE OF MUNICIPAL AND FIRE DEPARTMENT ORGANIZATION

The distribution of fire deaths between different classes of municipality (cities, towns, townships, etc.) and also between those municipalities which maintain a full-time fire department, those which have a volunteer fire department, and those which have none at all were investigated. For this purpose, a full-time fire department means one having at least seven full-time firemen, including the fire chief.

The results of the investigation are given in Table 3. They suggest that cities have, in relation to population, fewer fire deaths and villages relatively more than towns and townships; and that municipalities with full-time fire departments have relatively fewer fire deaths than those with no fire department; those with volunteer fire departments have an intermediate incidence. It will be apparent that this is consistent with what has already been said on geographical distribution of fire deaths, since both cities and fire departments are predominantly in the southern part of the Province.

The possibility must be admitted that villages and towns may have been charged with a few deaths which really occurred in townships, owing to the frequent practice of giving addresses as rural route numbers based on the nearest town or village.

It must be strongly emphasized that this tabulation does not establish and could not have established a causal relationship between the incidence of fire deaths and the two factors examined -- degree of municipal organization and provision of fire services. These two factors may well be no more than indices of the progress of a community from one condition (which is associated with high fire deaths) to another (which is associated with low fire deaths).

The question of whether the results found could be the result of pure chance is one which it is inconvenient to deal with here, but may be examined in a later supplement.

### FIRE DEPARTMENT ATTENDANCE AT FATAL FIRES

The typical fire fatality occurs in a dwelling of poor construction in a rural area. When a fire breaks out the poor

construction tends to encourage rapid development of fire, and the rural situation makes it unlikely that a fire department can get there quickly. Thus it is often impossible for the firefighters to save a life. This is no reflection on the usefulness of a fire department; even if on arrival of the appliances all the occupants have either escaped or died, the firefighters may still do much to limit property damage. Moreover, by publicizing fire prevention the department may do much to prevent fires starting which might become fatal.

In many cases, then, a fire victim's chance of survival is scarcely affected by the arrangements made by his municipality to provide firefighting (as opposed to fire prevention). In spite of this, analysis of these arrangements (Table 4) is interesting for the light it throws on the operation of Ontario fire departments.

Departments in this Province are, in general, forbidden to attend fires outside the areas for which they provide fire protection, but the information received suggests that exceptions are made to this rule. Nine fatal fires were attended by fire departments operating outside their areas, and these are analysed in detail in Table 4a. It is possible however that the information (4) regarding the extent of agreements to furnish fire protection on which the survey relies is incomplete, and that fewer than nine of these fire departments were operating without prior agreement.

#### INFLUENCE OF OVERCROWDING IN DWELLINGS

The index used here to measure whether the residences in which fire deaths occurred were or were not overcrowded is the "resident density". This is calculated from the over-all dimensions of the house and the number of floors, excluding the basement except where it is known to have been used for sleeping. It is expressed as the number of people normally resident per 100 square feet gross area.

The curve shows that in about half the fire deaths in residences, where the data are available, this index lies between 0.5 and 1. To visualize the situation, suppose that all the deaths had occurred in typical small houses of 1000 square feet. Then it could be said that for every four deaths one occurs where there are fewer than five residents per house; two occur where there are between 5 and 10; and one occurs where there are more than 10. The results are given in Fig. 7.

It may conservatively be estimated that about a quarter of the fire deaths occurred in overcrowded dwellings.

## NATURE OF FATAL INJURY

Table 5 shows the nature of the injury which was recorded by the Vital Statistics Section as the cause of death. The report on which the Section bases its classification may sometimes contain a skilled diagnosis arrived at after autopsy by a hospital pathologist, but it is doubtful whether the accuracy is equally high in some other cases. However, the results for 1955 agree very well with those for 1954.

## OCCUPANCY

The occupancies in which the fatal fires took place are tabulated in Table 6. Comparable figures for 1954 are also given in brackets; some minor re-classifications have altered the figures given in the previous report.

## SURFACE MATERIALS IN THE ROOM WHERE THE FIRE STARTED

Fire deaths are tabulated in Tables 7 and 8 according to the nature of the material which lined the surface of the walls and ceiling of the room in which the fatal fire originated (not necessarily the room where the life was lost). The relatively small number of deaths in occupancies other than dwellings are listed separately.

In Table 7 the section dealing with walls is independent of the section dealing with ceilings so that it is not possible to see how many people died in rooms of which, for instance, both ceiling and walls were incombustible. This deficiency is remedied in Table 8. To keep this down to a convenient size, the list of headings under which materials were classified has been condensed; thus lath and plaster, plaster-board, and other incombustible finishes have been grouped together simply as "incombustible", and lumber, plywood, fibreboard and other combustible finishes have been grouped as "combustible".

A further simplification used in Table 8 is the omission of all deaths classified as due to clothing fires. It is hard to imagine how wall linings could affect the chance of survival of the victim of a clothing fire, and this seems to have been recognized by those who sent in the fire reports, since in 20 out of 26 cases of clothing fires they did not trouble to supply the particulars of the wall and ceiling finish (Table 7).

Table 8 deals with 121 deaths, all of which are either infant fire deaths or building fire deaths, and all occurring in dwellings. The information contained in this table may be expressed in words in more than one way. For instance it could be said that 51 out of (51 + 37), or 58 per cent, of the deaths occurred where wall finish in the room where the fire started was combustible;

and that 53 out of (53+39), or 58 per cent, of the deaths occurred where ceiling finish in the room of origin was combustible.

Alternatively, it can be said that 43 out of (43 + 6 + 1 + 31), or 53 per cent, of the deaths occurred where both ceiling and walls of the room of origin of the fire were combustible, and 31 out of 81, or 38 per cent, where neither were, and the remaining (1 + 6) out of 81, or 9 per cent, where either walls or ceiling, but not both, were combustible. In each case "unknown" and "mixed" are regarded as neutral and left out of the calculation.

Unfortunately there is no way of knowing, as a basis of comparison, in what proportion combustible and incombustible finishes occur in dwellings generally.

### INQUESTS

Inquests were held into 49 of the 171 deaths, or 29 per cent.

### INFANT FIRE DEATHS

In this survey infant fire deaths have been treated separately. Assuming that children under five have little chance of looking after themselves in a fire, the survey inquires into why the person who would ordinarily be expected to make himself or herself responsible for the child's safety was, in the event, unable to protect or rescue the child. For brevity, this person is here referred to as "the responsible person", a term which should not be interpreted in any other sense than that just stated.

The results of the survey are given in Tables 9, 10, 11 and 12, which show the type of question which was asked when the reports were analysed and the number of cases which were classified under each of the replies.

It was found that in most cases the responsible person was the parent of the infant; showing that losses of infants cannot in general be attributed to their being left in the care of other persons who proved inadequate when emergency arose. Further, the survey shows that the responsible person was in most cases of an age such that the loss could not be attributed either to his immaturity or to his senility.

### CLOTHING FIRE DEATHS

Tables 13, 14, 15 and 16 are self-explanatory. Among the sources of ignition responsible for fatal clothing fires, stoves and ranges come highest with 13 cases, followed by flammable liquids (8) and careless smoking (6). Several of the victims were elderly people who might have been able to put the fires out if they had been more fit; 27 of the 38 were over 65 years of age. No clear indications arise from the particulars of the clothing. Where the nature of the fabric is known, cotton was the most frequently involved; but since cotton clothing is probably more generally worn indoors than any other single fabric, this finding is not sufficient to establish that cotton is associated with a higher incidence of fatal fires, though it seems quite likely.

### BUILDING FIRE DEATHS

Throughout this survey the emphasis is on the reason for the loss of life rather than the reason for the fire. This distinction is seldom given sufficient prominence. If, for instance, a fire starts in a basement and a life is lost on the third floor, surely the important problem is why the victim was unable to escape, rather than how the fire started. Only if this report were concerned with property loss would the cause of fire be of importance.

In the section of this survey dealing with building fire deaths it has, however, been possible to tabulate both the reason for the fatal injury and the cause of fire (Table 17). It is found that over half the victims (disregarding the unknown causes) either died while sleeping, or before they had time to assess the situation and attempt escape.

Most of the remainder died because they were in one way or another trapped by the fire; the details are given in the table. The largest single group among these is that of nine victims for whom no other reason for their being trapped can be assigned than that the fire travelled faster than the victims could and they were overtaken. When these are examined in detail it is found that in six of the nine cases (four fatal fires out of seven) the fire started in a room with combustible ceiling and walls.

As regards to the cause of fire, among the 40 cases classifiable according to the list in Table 17, just half were connected with smoking, and most of the remainder were due to misuse or faulty maintenance of heating or cooking appliances.

In most of the fatal building fires the whole building was involved in the fire (Table 18).



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3. 1955 Municipal Directory. Dept. of Municipal Affairs, Toronto.
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ACKNOWLEDGMENTS

Grateful acknowledgment is here recorded to Miss N. MacDonald who assisted with the coding manual, conducted an extensive correspondence to obtain information on fire deaths, and prepared the marginally-punched cards used for manipulating the information ; to Mr. J. C. Stevens (of the Ontario Fire Marshal's Office) and Mr. E. L. Mulligan who prepared the cards used for manipulating the information on municipalities required for Table 3.

TABLE 1GEOGRAPHICAL INCIDENCE OF FIRE DEATHS

		<u>Metropolitan Toronto; Hamilton; London; Windsor</u>	<u>Remainder of the counties (southern Ontario)</u>	<u>Districts (northern Ontario)</u>	<u>Total</u>
<u>1954</u>	Fire deaths	37	94	42	173
	Population	1,614,590	2,798,600	632,800	5,046,000
	FDR	2.29	3.36	6.64	3.43
<u>1955</u>	Fire deaths	19	93	59	171
	Population	1,698,375	2,840,000	644,610	5,183,000
	FDR	1.12	3.28	9.15	3.30
Mean FDR for 2 years		<u>1.70</u>	<u>3.32</u>	<u>7.90</u>	<u>3.36</u>
Area (sq. ml.).		270	39,465	323,547	363,282
Population density (1955) (people per sq. ml.)		6,290	72	2.0	--

TABLE 2FIRE DEATHS BY SEX AND PRIMARY CLASSIFICATION

	<u>I</u>	<u>C</u>	<u>B</u>	<u>Total</u>	<u>Fire death rate</u>
MALE	25	16	44	85 ( 97)	3.25 (3.81)
FEMALE	<u>28</u>	<u>22</u>	<u>36</u>	<u>86 ( 76)</u>	<u>3.35 (3.04)</u>
TOTAL	53	38	80	171 (173)	3.30 (3.43)

The comparable figures for 1954 are given in brackets.

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TABLE 3

FIRE DEATH RATE BY CLASS OF  
MUNICIPALITY AND OF FIRE PROTECTION (a)

		<u>Full-time fire department with</u>					
	No fire protec- tion	Fire protec- tion furn- ished by an- other munic- ipality	Volun- teer fire dept.	7-50 full- time men	51-100 full- time men	101 or over full- time men	All
Cities	(b)	(b)	(b)	1.3	2.5	2.3	2.2
Towns & separ- ated towns	(b)	(b)	4.8	5(c)	(b)	(b)	4.9
Villages & improvement districts	(b)	(b)	6(c)	(b)	(b)	(b)	5.2
Townships	7.1	3.3(d)	3.6	1(c)	1.1	(b)	3.4
All (e)	<u>6.8</u>	<u>3.3</u>	<u>4.3</u>	<u>2.1</u>	<u>1.8</u>	<u>2.3</u>	<u>3.2</u>

- (a) The table is based on the total of fire deaths in 1954 and 1955 together but on 1955 population figures only.
- (b) There being little or no population falling in this category, no reliable estimate of FDR can be made.
- (c) The populations in these categories are in the range 100,000 - 200,000, so the FDR is given to one significant figure only.
- (d) A few of the municipalities in this category have their own fire appliances, but they are operated by men from another municipality.
- (e) This line takes in all classes of municipality but excludes areas not incorporated and Indian reserves. There were 33 fire deaths in these areas in the two years, but no population figure is available. Before comparing these figures with those in other parts of the report it should be noted that municipal population figures exclude some persons included in county and provincial populations.

TABLE 4FIRE DEPARTMENT ATTENDANCE AT FATAL FIRES

The unit of this table is the fatal fire, not the fire fatality as elsewhere in this report. Ignited clothing fires would not generally be attended by a fire department and consequently 42 such fires have been left out of this table (including some cases classified for other purposes as infant fire victims).

Account is taken of one fire protection agreement mentioned in a fire report though not officially listed.

The municipality has a full-time fire department.

The municipality has a volunteer fire department.

The municipality has its fire protection furnished by the fire department of another municipality.

The municipality has no fire protection.

N u m b e r o f f a t a l f i r e s . . . . .

21	21	3	-
1	3	-	-
-	-	-	9*
1	3	2	9

Attended by:

This fire department only.

This fire department and another.

The fire department of another municipality.

Not attended by any fire department.

\* These nine cases are further analysed in Table 4a.

TABLE 4a

Fatal fires attended by fire departments without  
prior arrangement to furnish protection.

	<u>County Mutual Aid in effect</u>	<u>No County Mutual Aid</u>	<u>Total</u>
<u>The fire departments which attended were:</u>			
Full-time	1	1	2
Volunteer	1	4*	5
Volunteer and non-municipal	-	1	1
Non-municipal	-	1	1
	<hr/>	<hr/>	<hr/>
	2	7	9

\* One township has a fire department not in operation, and is in a county having County Mutual Aid. However, the fire department which attended came from another county.

TABLE 5NATURE OF FATAL INJURY

	<u>I</u>	<u>C</u>	<u>B</u>	<u>Total</u>
Asphyxia	17	1	32	50 (44)
Burns	33	37	34	104 (111)
Carbon-monoxide poisoning	3	0	14	17 (16)
Other injuries	0	0	0	0 ( 2)

The comparable figures for 1954 are given in brackets.

TABLE 6OCCUPANCY

	<u>Fire Deaths</u>			
	<u>I</u>	<u>C</u>	<u>B</u>	<u>TOTAL</u>
Residential:-				
Unshared separate dwelling	32	5	41	78 (74)
Unshared apartment	1	1	8	10 ( 6)
Shared separate dwelling	7	-	7	14 ( 8)
Shared apartment	-	-	-	- ( 1)
Rooming house	1	1	5	7 ( 3)
Barracks, etc.	-	-	3	3 ( -)
Hotel	-	1	-	1 ( 1)
One-room dwelling	-	-	2	2 (13)
Dwelling of other known type	3	-	2	5 ( 5)
Dwelling of unspecified type	<u>4</u>	<u>18</u>	<u>5</u>	<u>27 (34)</u>
<b>SUBTOTAL</b>	48	26	73	147 (145)
Industrial	-	1	1	2 (11)
Mercantile	-	-	1	1 ( 1)
Hospital, Home for Aged	-	2	-	2 ( 4)
Stationary vehicle	2	-	1	3 ( 3)
Barns, farm outbuildings	2	-	2	4 ( 2)
Outdoors	1	9	-	10 ( 2)
Other	-	-	2	2 ( 1)
Unknown	-	-	-	- ( 4)
<b>TOTAL</b>	<u>53</u>	<u>38</u>	<u>80</u>	<u>171 (173)</u>

The comparable figures for 1954 are given in brackets.



TABLE 7SURFACE MATERIALS IN THE ROOM WHERE FIRE STARTED

<u>Dwellings only</u>	<u>Walls</u>			<u>Ceiling</u>		
	<u>I</u>	<u>C</u>	<u>B</u>	<u>I</u>	<u>C</u>	<u>B</u>
<u>Surface material</u>	<u>Number of fatalities</u>					
Unknown	10	20	16	13	20	16
Lath & plaster	4	3	20	4	3	19
Plasterboard	6	-	7	6	-	6
Lumber	9	-	11	10	-	11
Plywood	3	-	2	2	-	1
Fibreboard, pressed paperboard, etc.	8	3	10	8	3	15
Other combustible finishes	4	-	4	2	-	4
Other incombustible finishes	-	-	-	3	-	1
Mixed combustible & incombustible	4	-	3	-	-	-
<u>Occupancies other than dwellings</u>	5	12	7	5	12	7
TOTAL	53	38	80	53	38	80

TABLE 8SURFACE MATERIALS IN ROOM WHERE FIRE STARTEDDwellings onlyCEILING:-

<u>Unknown</u> <u>or n.a.</u>	<u>Incom-</u> <u>bustible</u>	<u>Combus-</u> <u>tible</u>	<u>Mixed</u>	<u>Total</u>
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Number of I and B deaths together

<u>WALLS:-</u>	Unknown or n.a.	22	4	-	-	26
	Incombustible	-	31	6	-	37
	Combustible	7	1	43	-	51
	Mixed	-	3	4	-	7
		—	—	—	—	—
	TOTAL	29	39	53	-	121
I and B deaths in occupancies other than dwellings 12						
C deaths						38
						—
TOTAL						171

INFANT FIRE DEATHS (Total 53)TABLE 9

Who was responsible for the child at the time of the fire?	Unknown	2
	Parent	48
	Brother or sister	2
	Other	1
		<u>53</u>

TABLE 10

Age of this responsible person?	Unknown	6
	12 - 15	2
	16 - 20	1
	21 - 34	41
	35 - 50	3
		<u>53</u>

TABLE 11

How long from when he last saw the infant to time of fire?	Unknown	6
	Was in same dwelling at time of fire	35
	5 - 30 minutes	11
	30 minutes - 2 hours	1
		<u>53</u>

TABLE 12

<u>Reason for loss of infant in fire</u>	<u>Number of infant fire deaths</u>
"Responsible person" was engaged in saving other persons, or trying to:	15
Responsible person a fatality herself	13
Performing hazardous operation in presence of infant	1
Not there in time:	
"RP" had left the child for more than 5 minutes	..... 12
"RP" was in the building at the time of the fire but was still not in time to save the infant	..... 6
Reason for not being there unknown	..... 2
	—
Unknown	4
	—
TOTAL	53
	—

Six cases demand further inquiry: where the responsible person was too late even though he or she was in the same dwelling at the time of the fire. In one of these the responsible person was on a different floor and seems to have had an abnormally slow reaction. In the five other cases it was night time and the responsible person was sleeping at the time of the outbreak, so that some delay in taking action is understandable, especially as two of the infants were in the care of a child of 12. In all six cases (three fatal fires) the room where the fire started had both its ceiling and walls lined with a combustible finish, which may be associated with a rapid development of fire.

CLOTHING FIRE DEATHS (Total 38)TABLE 13How ignited

Unknown	3
Smoking, etc.	6
Burning rubbish	4
Electrical cooking appliances	5
Non-electrical " "	8
Flammable liquids in use as fuel	2
Flammable liquids to kindle fires	3
Other flammable liquid cases	3
Other known causes	4
	<u>38</u>

TABLE 14Victim's reaction

Unknown	12
Rolled on ground, snow	4
Beat fire with hands	4
Ran	4
Unable to take effective action because senile or invalid	8
Other reactions	6
	<u>38</u>

TABLE 15

<u>Type of garment</u>	<u>Male</u>	<u>Female</u>	
Unknown	4	Unknown	5
Shirt	1	Blouse	1
Trousers	3	Skirt	1
Jacket, etc.	2	Sweater, etc.	2
Overalls	1	Dress, etc.	9
Pyjamas	2	Pyjamas or	
Dressing gown	1	nightgown	1
Other	2	Dressing gown	2
	<u>16</u>	Other	1
			<u>22</u>
			38

TABLE 16Predominant constituent of fabric

Unknown	22
Cotton	11
Wool	3
Others	2
	<u>38</u>

TABLE 17BUILDING FIRE DEATHS (Total 80)

<u>Cause of fire</u>	<u>Cause of fatal injury</u>							<u>TOTAL</u>
	Unknown	Asleep and did not wake in time to attempt escape	Trapped by fire in an exit	Trapped through trying to warn or save others	Trapped because overtaken by fire or fumes	Trapped for unknown reasons	Other known causes	
Unknown	5	8	3	1	1	2	2	22
Playing with matches	-	2	-	-	1	-	-	3
Someone fell asleep while smoking	-	12	-	-	-	-	-	12
Other instances of smoking	1	4	-	1	2	-	-	8
Faultily maintained or used electrical cooking appliances	-	4	-	-	-	-	-	4
Faultily maintained or used non-electrical cooking appliances	-	2	-	-	-	1	-	3
Faultily maintained or used non-electrical furnaces or space heaters	3	1	-	-	2	-	1	7
Incendiarism	1	1	-	1	-	-	-	3
Other known causes	1	4	1	2	3	2	5	18
TOTAL	11	38	4	5	9	5	8	80

TABLE 18SIZE OF FATAL BUILDING FIRES

The fire was confined within:-

Contents of room where fire started	1
Room of origin	13
Storey of origin	7
Building of origin	53
Not confined to building of origin	1
Unknown or not applicable	5
	<hr/>
	80

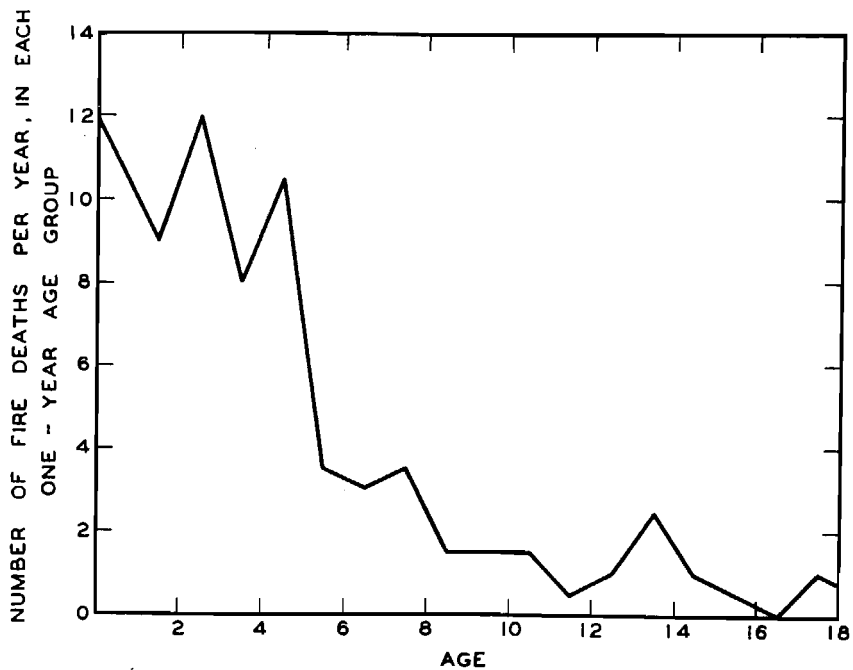


FIGURE 1

NUMBERS OF CHILDREN DYING IN FIRES, BY  
AGE: MEAN OF 1954 AND 1955.

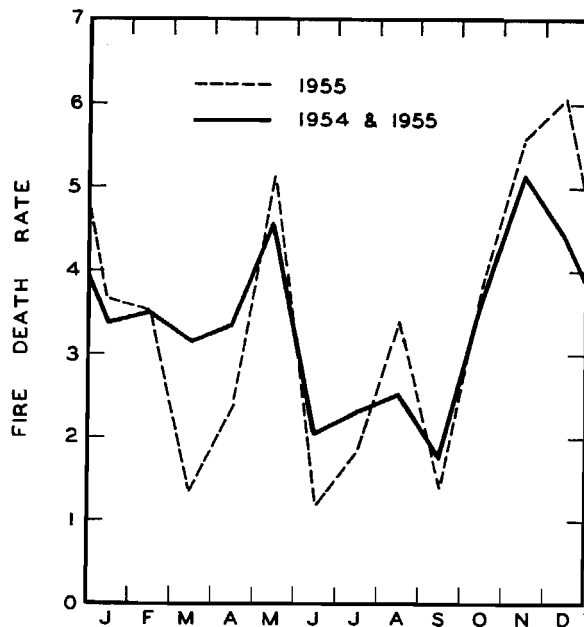


FIGURE 2

FIRE DEATH RATE BY MONTHS



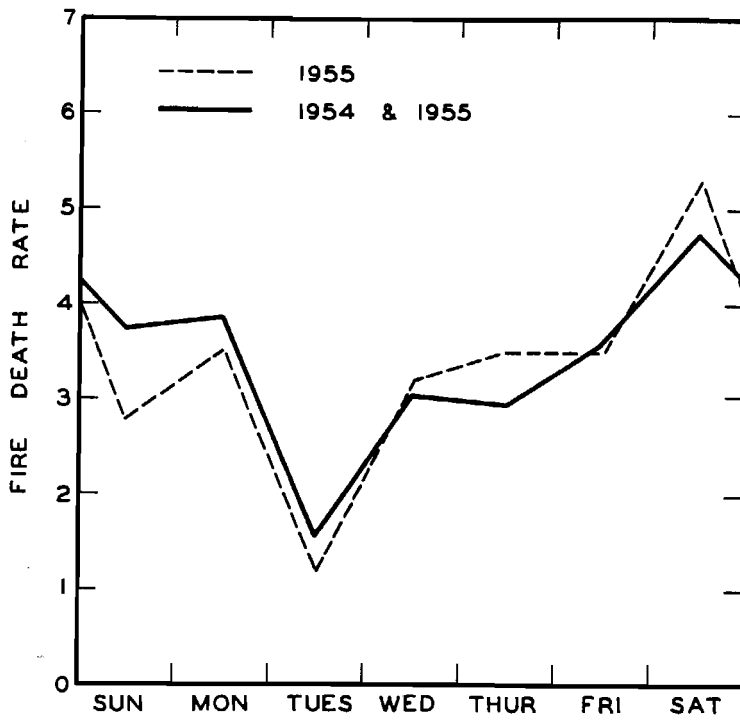


FIGURE 3  
FIRE DEATH RATE BY DAY OF WEEK

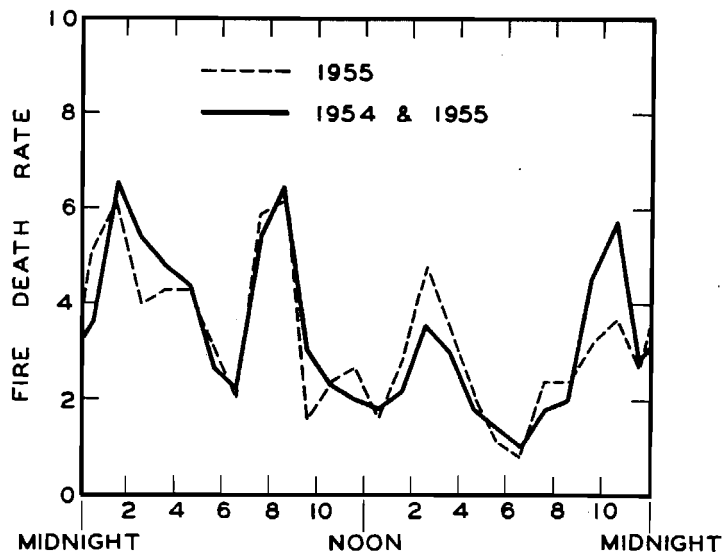


FIGURE 4  
FIRE DEATH RATE BY TIME OF DAY

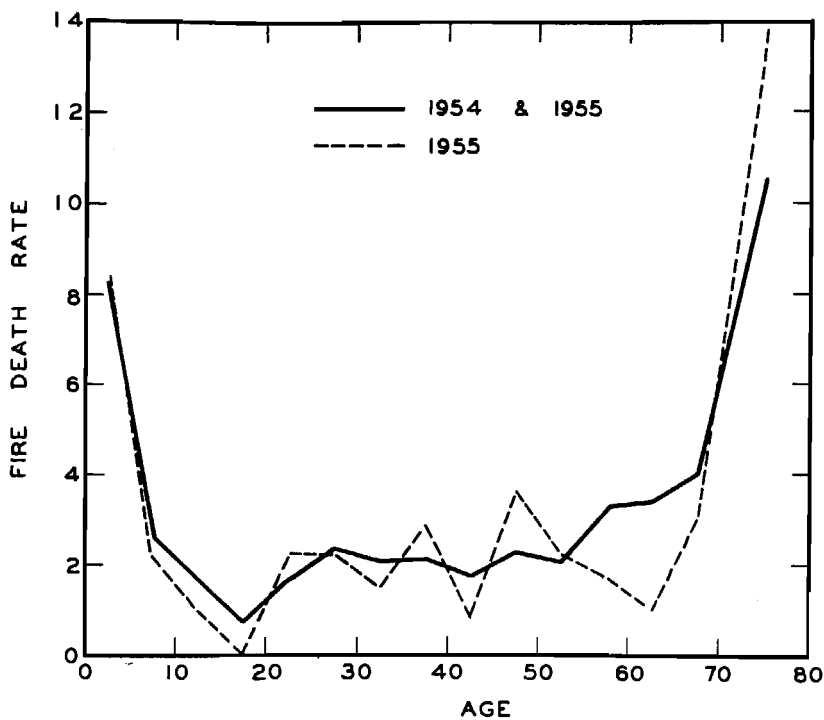


FIGURE 5  
FIRE DEATH RATE BY AGE OF VICTIM

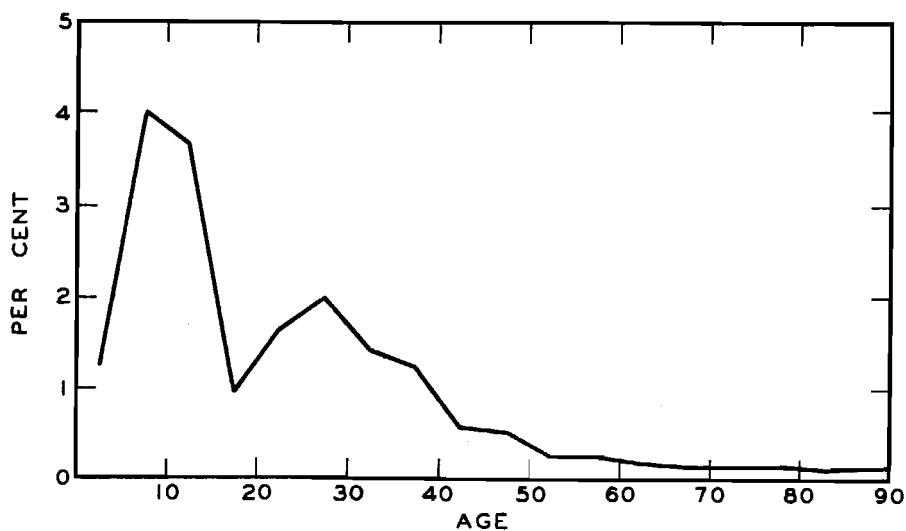


FIGURE 6  
PROPORTION OF ALL DEATHS IN ONTARIO  
THAT ARE DUE TO FIRE. (MEAN OF 1954 & 1955.)

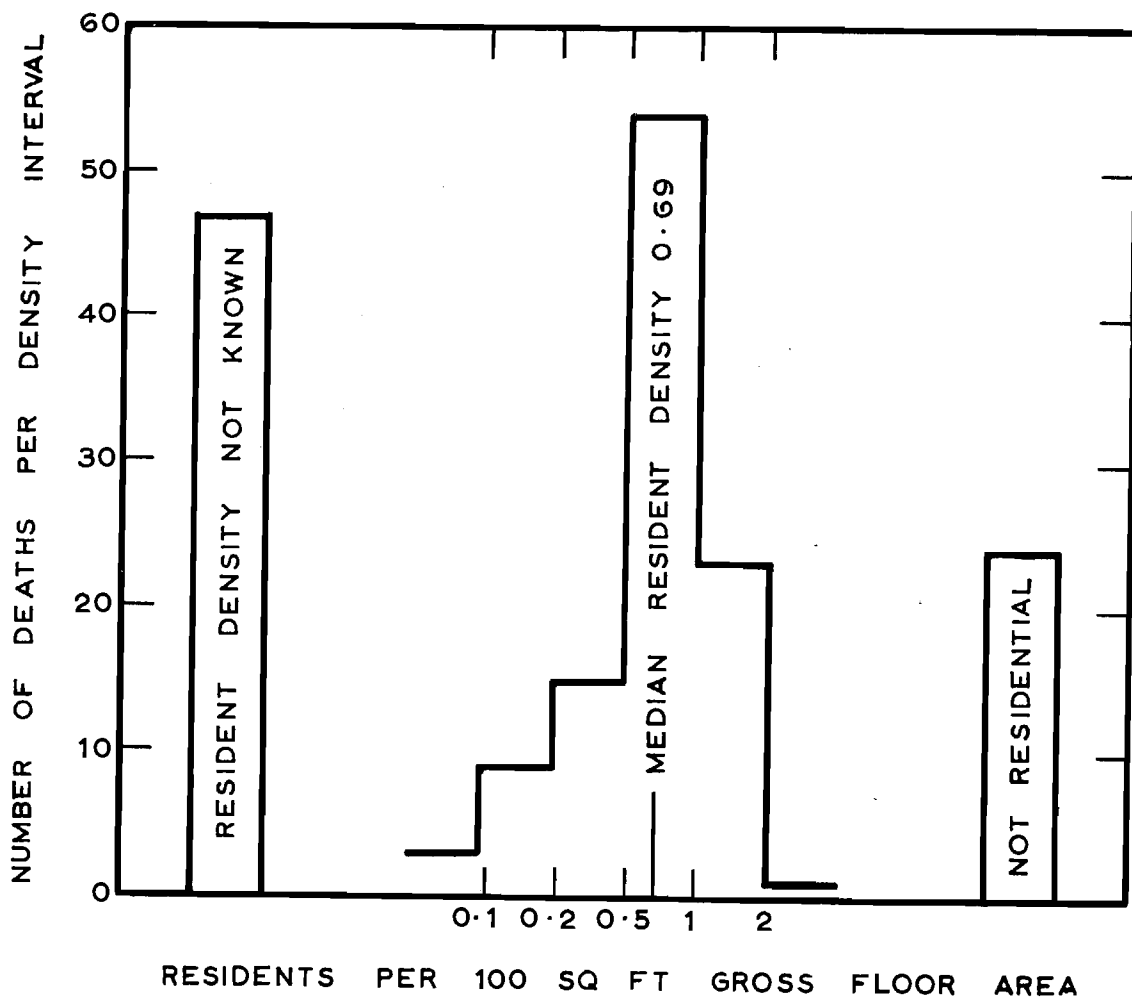


FIGURE 7      RESIDENT DENSITY