MORTALITY FROM EXTERNAL CAUSES AMONG INDUS-
TRIAL POLICYHOLDERS OF THE METROPOLITAN LIFE
INSURANCE COMPANY, 1911–1916.*

BY

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The group of the external causes of death is the fifth in order of
numerical importance in this investigation.

In any discussion of mortality, we may, in general, distinguish
two main classes; first, those diseases and conditions which arise
from pathologic processes within the body, and second, conditions
which follow injury by some means or agency external to the hu-
man economy.  Under each of these two fundamental divisions, we
attempt to identify the specific agencies at work.  Oftentimes, we
must have recourse simply to a statement of the disease or condition
present, without reference to the particular causative agency pro-
ducing the disease.  This observation applies especially to diseases
of internal origin.  The "external" conditions are by comparison
less difficult to determine causally.  Our first approach to them is
to establish three classes, the division being made with respect to
the element of human volition involved in the fact of injury.  The
first group consists of the accidental deaths, those accomplished by
pure chance or through personal negligence without deliberate in-
tent to kill, maim or incapacitate.  The second group of external
causes of death consists of the suicides, or cases where there was
deliberate intent to accomplish self-destruction  Under the third
class, we consider all deaths (except war deaths) which arise from
the impulse of one person to kill or injure another.  These latter
are "homicides."  For each of these main classes of violence, we
shall endeavor further to distinguish the means or agency of in-
jury.  War deaths have been taken from the class of accidental and
unspecified violence and shown separately for purposes of this
report.

During the six-year period covered by this investigation of wage
earners' mortality, there were 50,712 deaths from external violence

* This is an excerpt, being Chapter VIII of my forthcoming book en-
titled, "Mortality Statistics of Insured Wage Earners and Their Families."

of all kinds. The following table gives the incidence of the three chief groups of external causes represented in our records:

TABLE 1.

MORTALITY FROM EXTERNAL CAUSES OF DEATH. CLASSIFIED ACCORDING TO MAIN GROUPS.

*Deaths and Death Rates per 100,000 Persons Exposed and Per Cent. of Total Mortality from External Causes Represented in Each Main Group. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Class of External Violence. | Number of Deaths. | Per Cent. of Total External Causes. | Death Rate per 100,000 Exposed. |
|---|---|---|---|
| Total external causes ............. | 50,712 | 100.0 | 94.3 |
| Accidents, incl. unspec. violence* | 39,268 | 77.4 | 73.0 |
| Suicides..................... | 6,542 | 12.9 | 12.2 |
| Homicides................... | 3,753 | 7.4 | 7.0 |
| War deaths................. | 1,149 | 2.3 | 2.1 |

* Excludes "war deaths."

The total death rate corresponding to the 50,712 deaths was 94.3 per 100,000, which, as we shall see later, is very considerably in excess of the rate for the external causes prevailing in the general population of the expanding Registration Area. More than three quarters of these deaths were due to accidents. If "war deaths" were included, as perhaps they should be to follow classification practice, the proportion would reach nearly 80 per cent. Suicides comprise 12.9 per cent. and homicides 7.4 per cent. additional. We shall consider in detail first the group of accidents.

### ACCIDENTS, INCLUDING UNSPECIFIED VIOLENCE.

The general accident problem in the United States, and especially as it affects the wage earner, should interest us because of the very considerable mortality which results from this group of causes. It would appear that the special conditions of American life and industry still give rise to hazards which result in an extraordinarily large fatal accident rate. When compared with accident mortality in England and Wales, the American figures show up especially badly. In the year before the war, 1913, the fatal accident rate of England and Wales was, for males 35 to 44 years,

62.4 per 100,000. In the Registration Area of the United States, the rate for males at these ages was 139.6 per 100,000, and, among the insured white males, the rate was 154.3. In other words, the rate for England and Wales was 44.7 per cent. of that for the expanding Registration Area of the United States and only 40.4 per cent. of the rate for insured white males. Even when we consider the chief types of fatal accidents, such as falls, burns, drowning, and steam railroad accidents in these three series of figures, the rates of mortality as recorded for the United States are much above the figures for England and Wales, and those for the Industrial policyholders are, for the significant age periods, highest of all. The data on fatal accidents and especially the specific forms of accidental injury which we have included for American wage earners should, therefore, constitute a very valuable contribution for the further study of the accident problem and should prove especially useful in the movement for increased industrial and public safety which has been developed during the last ten years.

The 39,268 fatal accidents of all kinds, as we have seen, corresponded to a rate of 73.0 per 100,000 persons exposed. The fatal accident rate for males of both white and colored groups was more than three times the rate for females. The recorded fatal accident rate for colored males was somewhat higher than the rate for white males; all ages one and over being combined for purposes of these comparisons.

The accident death rate varies considerably with age; in fact, we may distinguish three divisional periods of age incidence. These are the period of early childhood, the period of occupational stress and finally the period of old age. Considering the group as a whole, we find that the highest accident death rate under age 45 was recorded between the ages 1 and under 5 years. There is a decline in the rate from the figure under 5 years of age (93.7 per 100,000) to the rate at the age group 10 to 14 years (41.4 per 100,000). This latter rate is the minimum for any age period. Beginning with the age group 15 to 19 years there is a gradually rising rate up to the highest significant age period. For the white male and white female groups the minimum accident death rate is recorded, as for the total experience, between 10 and 14 years; but for colored males the minimum rate is reached between 5 and 9 years and for colored females between 15 and 19 years. Only the white males exhibit a progressively increasing accident death rate

## Chart I. MORTALITY FROM ACCIDENTS AND UNSPECIFIED VIOLENCE

Death Rates per 100,000 Persons Exposed, Classified by Age Periods. White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916

Death Rate
per 100,000

Death Rate
per 100,000

White Males_____
Colored Males_____

White Females_____
Colored Females_____

AGE PERIOD
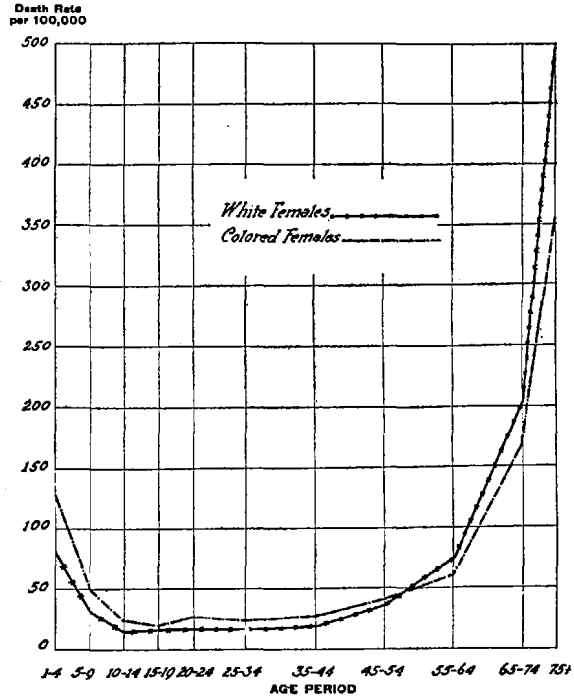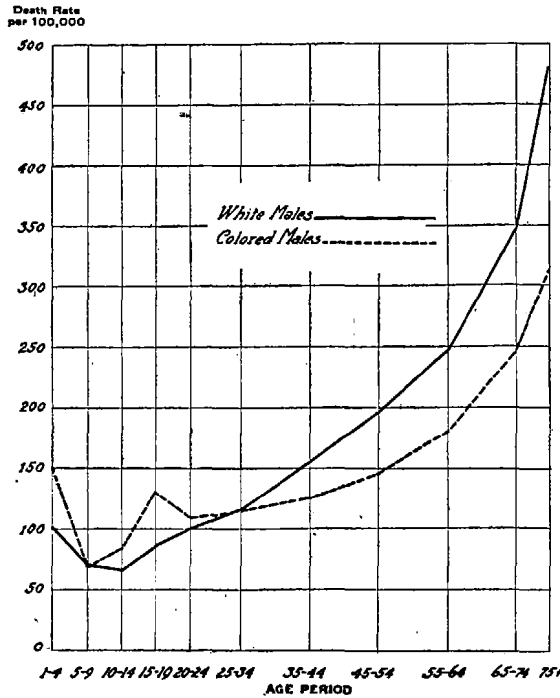
AGE PERIOD

with advancing age, beginning with the period 15 to 19 years. White females show a rather stationary tendency in the mortality rate between 15 and 35 years of age. Between 15 and 24 years colored males show a tendency toward decline; thereafter they exhibit a rising death rate. Colored females show a fluctuating fatal accident rate between 10 and 44 years and a rising rate thereafter. These facts are shown in the following table, and in Chart I on page 13:

### TABLE 2.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE,* CLASSIFIED BY
COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Male. | Female. | Male. | Female. |
| All ages—one and over.. ........ | 73.0 | 115.9 | 36.4 | 121.4 | 38.8 |
| 1 to 4...... | 93.7 | 100.9 | 79.4 | 151.3 | 126.3 |
| 5 to 9...... | 51.4 | 68.9 | 31.9 | 67.9 | 51.2 |
| 10 to 14..... | 41.4 | 65.1 | 14.4 | 83.5 | 22.7 |
| 15 to 19..... | 53.4 | 85.7 | 16.9 | 131.7 | 18.2 |
| 20 to 24..... | 55.6 | 99.8 | 16.5 | 109.4 | 25.6 |
| 25 to 34..... | 57.9 | 114.5 | 15.7 | 115.3 | 22.5 |
| 35 to 44..... | 71.6 | 154.3 | 19.4 | 124.8 | 27.1 |
| 45 to 54..... | 95.2 | 195.1 | 35.5 | 145.6 | 41.1 |
| 55 to 64..... | 137.2 | 246.5 | 73.2 | 180.7 | 59.0 |
| 65 to 74..... | 251.4 | 346.0 | 201.1 | 247.2 | 167.9 |
| 75 and over . | 477.8 | 482.4 | 496.4 | 315.5 | 353.9 |

* War deaths excluded.

## Color Ratio of Accident Mortality.

The fatal accident rates of the white and colored races are, as we have seen, very different. We find, for example, that under 5 years of age, colored children, both males and females, show a fatal accident rate about 1½ times that of white children. In the period 5 to 9 years colored males show a fatal accident rate just a little less than the white male rate. Between 15 and 19 years, however, we observe the maximum percentage of excess of colored male over white male accident mortality. Colored females, on the other hand, show their maximum percentage of excess in accident mortality between 5 and 9 years of age. After the age period 25 to 34 years, colored males show a lower mortality than white males, which

condition is probably the result of their safer occupational conditions. A similar condition of lower mortality prevails among the colored females after 45 to 54 years, but the cause for this is difficult to ascertain. The following table affords a comparison of white and colored accident mortality according to sex:

TABLE 3.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

*Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.*

Metropolitan Life Insurance Company, Mortality Experience. Industrial Department.

| Age Period. | Percentage, Colored of White Mortality. | |
|---|---|---|
| | Males. | Females. |
| All ages—one and over.. | 104.7 | 106.6 |
| 1 to 4 ....... | 150.0 | 159.1 |
| 5 to 9 ....... | 98.5 | 160.5 |
| 10 to 14 ...... | 128.3 | 157.6 |
| 15 to 19 ...... | 153.7 | 107.7 |
| 20 to 24 ...... | 109.6 | 155.2 |
| 25 to 34........ | 100.7 | 143.3 |
| 35 to 44........ | 80.9 | 139.7 |
| 45 to 54........ | 74.6 | 115.8 |
| 55 to 64........ | 73.3 | 80.6 |
| 65 to 74........ | 71.4 | 83.5 |
| 75 and over..... | 65.4 | 71.3 |

* War deaths excluded.

## Sex Ratio of Accident Mortality.

The differences in the stresses of occupation between the sexes are clearly reflected in the accident death rates. Considering white lives first, there was an excess of the male accident rate over the female rate in every age period of our data, with the exception of the last age group, 75 years and over. The maximum percentage of excess of male accident mortality is found between 35 and 44 years of age, when the male rate is nearly eight times greater. Among white lives between 1 and 45 years of age there is increasing percentage of excess of male over female accident mortality; after 45, the excess becomes regularly less. Colored persons did not show any such increase with age in the excess percentage of male over female mortality. The maximum percentage of excess of males over females among colored persons is found between the ages 15 and 19 years, where colored males show a fatal accident rate nearly

7¼ times that of colored females. These facts are exhibited in the
following table:

TABLE 4.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

*Percentage, Male of Female Mortality at Specified Age Periods for Each
Color Class. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Percentage, Male of Female Mortality. | |
| --- | --- | --- |
| | White. | Colored. |
| All ages—one and over.. | 318.4 | 312.9 |
| 1 to 4......... | 127.1 | 119.8 |
| 5 to 9......... | 216.0 | 132.6 |
| 10 to 14........ | 452.1 | 367.8 |
| 15 to 19........ | 507.1 | 723.6 |
| 20 to 24........ | 604.8 | 427.3 |
| 25 to 34........ | 729.3 | 512.4 |
| 35 to 44........ | 795.4 | 460.5 |
| 45 to 54........ | 549.6 | 354.3 |
| 55 to 64........ | 336.7 | 306.3 |
| 65 to 74........ | 172.1 | 147.2 |
| 75 and over..... | 97.2 | 89.1 |

. * War deaths excluded.

*Fatal Accident Rate among Insured Wage Earners and Population
of the Expanding Registration Area Compared.*

Before proceeding to a detailed consideration of the various
forms of accidents represented in our experience, it might be well,
in passing, to exhibit a table of the accident death rates per 100,000
among white insured wage earners and in the general population
of the expanding Registration Area of the United States. The
table on page 17 affords a view of these data.

Under 20 years and after 35 years of age white males of the in-
sured wage earners' group show a higher accident mortality than
do males in the Registration Area in general. For the ages under
5 years, insured white males show an accident death rate 5 per cent.
in excess, between 5 and 9 years, 17 per cent., and between 10 and
14, 14 per cent. in excess of the rates among males in the corre-
sponding age groups of the general population. Between 20 and
34 years of age insured white male wage earners show a lower mor-
tality from accidents than was recorded among males in the Regis-
tration Area record. Beginning with the age period 35 to 44

TABLE 5.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

*Death Rates per 100,000 Persons Exposed.  Classified by Sex and by Age Period.  Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).*

| Age Period. | Males. | | | Females. | | |
|---|---|---|---|---|---|---|
| | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. |
| All ages—one and over.... | 115.9 | 120.8 | 95.9 | 36.4 | 37.4 | 97.3 |
| 1 to 4..... | 100.9 | 96.4 | 104.7 | 79.4 | 76.5 | 103.8 |
| 5 to 9..... | 68.9 | 58.8 | 117.2 | 31.9 | 29.6 | 107.8 |
| 10 to 14.... | 65.1 | 56.9 | 114.4 | 14.4 | 13.0 | 110.8 |
| 15 to 19.... | 85.7 | 85.0 | 100.8 | 16.9 | 15.4 | 109.7 |
| 20 to 24.... | 99.8 | 116.6 | 85.6 | 16.5 | 17.0 | 97.1 |
| 25 to 34.... | 114.5 | 123.4 | 92.8 | 15.7 | 15.5 | 101.3 |
| 35 to 44.... | 154.3 | 139.6 | 110.5 | 19.4 | 18.9 | 102.6 |
| 45 to 54.... | 195.1 | 156.8 | 124.4 | 35.5 | 27.7 | 128.2 |
| 55 to 64.... | 246.5 | 178.5 | 138.1 | 73.2 | 49.0 | 149.4 |
| 65 to 74.... | 346.0 | 214.3 | 161.5 | 201.1 | 118.1 | 170.3 |
| 75 and over. | 482.4 | 418.0 | 115.4 | 496.4 | 534.8 | 92.8 |

* War deaths excluded.

years, however, accident mortality among white male insured wage earners begins progressively to exceed the rates among males in the general population up to and including the period 65 to 74 years. The figures for ages beyond 75 years are not significant in view of the small exposure.

The comparisons between insured white females and females in the general population also show higher death rates for the insured group, with the exception of the age period 20 to 24 years, than for the group of females in the general population.  The differences are not so marked, however, as they were for the males.  Below 20 years of age the percentages of excess of accident mortality among insured white females are variable.  Beginning with the age period 25 to 34 years there is a progressive increase in the excess of accident fatality rates among white female wage earners over the rates for females in the general population.

*Fatal Accidents According to Specific Means or Nature of Injury.*

The foregoing observations on accident mortality were made without reference to the specific nature or means of injury.  We

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shall now consider briefly the several inclusions under the general title as shown in the following table:

TABLE 6.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED VIOLENCE.*

*Deaths and Death Rates per 100,000 Persons Exposed by Specified Causes and by Color and Sex. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company.  Industrial Department.

| Cause of Death. | Persons. | | Rate per 100,000. | | | |
|---|---|---|---|---|---|---|
| | Deaths. | Rate per 100,000. | White. | | Colored. | |
| | | | Males. | Females. | Males. | Females. |
| ACCIDENTS AND UNSPECIFIED VIOLENCE—TOTAL* | 39268 | 73.0 | 115.9 | 36.4 | 121.4 | 38.8 |
| Poisoning by food | 622 | 1.2 | 1.2 | 1.0 | 1.5 | 1.8 |
| Other acute poisonings | 1144 | 2.1 | 2.4 | 1.8 | 2.7 | 2.0 |
| Conflagration | 576 | 1.1 | 1.2 | .7 | 2.0 | 2.0 |
| Burns—conflagration excepted | 4714 | 8.8 | 7.2 | 9.3 | 8.4 | 14.3 |
| Absorption of deleterious gases —conflagration excepted | 1431 | 2.7 | 3.9 | 1.9 | 2.3 | .9 |
| Accidental drowning | 5757 | 10.7 | 20.1 | 2.6 | 23.2 | 2.1 |
| Traumatism by firearms | 1029 | 1.9 | 3.0 | .3 | 8.1 | 1.5 |
| Traumatism by cutting or piercing instruments | 93 | .2 | .2 | .1 | .7 | .2 |
| Traumatism by fall | 6917 | 12.9 | 18.8 | 8.9 | 13.3 | 5.3 |
| Traumatism in mines and quarries (total) | 660 | 1.2 | 2.5 | † | 3.6 | — |
| — in mines | 612 | 1.1 | 2.4 | † | 3.4 | — |
| — in quarries | 48 | .1 | .2 | † | .2 | — |
| Traumatism by machines | 905 | 1.7 | 3.4 | .1 | 4.8 | .1 |
| Steam railroad accidents and injuries | 4485 | 8.3 | 16.8 | 1.2 | 17.3 | 1.6 |
| Street car accidents and injuries | 1600 | 3.0 | 5.3 | 1.2 | 4.1 | .9 |
| Automobile accidents and injuries | 2507 | 4.7 | 8.1 | 2.3 | 4.6 | 1.3 |
| Injuries by other vehicles | 1658 | 3.1 | 5.7 | .9 | 5.6 | .5 |
| Landslide, other crushing | 381 | .7 | 1.4 | .1 | 1.9 | .1 |
| Injuries by animals | 233 | .4 | .9 | † | 1.1 | — |
| Starvation | 16 | † | † | † | .1 | † |
| Excessive cold | 217 | .4 | .6 | .1 | 1.5 | .5 |
| Effects of heat | 1247 | 2.3 | 3.4 | 1.3 | 4.3 | 1.6 |
| Lightning | 96 | .2 | .3 | † | .5 | — |
| Electricity—lightning excepted | 452 | .8 | 2.0 | † | .7 | .1 |
| Fractures—cause not specified | 806 | 1.5 | 1.9 | 1.2 | 1.9 | .5 |
| Other external violence* | 1722 | 3.2 | 5.4 | 1.2 | 7.5 | 1.4 |

* War deaths excluded.

† Less than .05 per 100,000.

Thus, among all accidents included in the above table, falls were the most frequent of the specified forms of violence.  There

were 6,917 deaths from falling recorded among insured wage earners over the six-year period 1911 to 1916, at a rate of 12.9 per 100,000 exposed. Accidental drowning was next in importance with 5,757 deaths at a rate of 10.7 per 100,000 in the six-year period under observation. Burns, excluding burns in conflagrations, followed with 4,714 deaths, or at a rate of 8.8 per 100,000 exposed. Steam railroad accidents and injuries showed 4,485 deaths, producing a rate of 8.3 per 100,000. Automobile accidents and injuries were recorded in 2,507 cases, with a death rate of 4.7 per 100,000 exposed. A detailed discussion of the facts for some of the more important of these modes of injury in external causes of death follows.

### TRAUMATISM BY FALL.*

We have previously indicated that traumatism by fall was the chief form of the fatal accidents. The 6,917 deaths from this condition corresponded to a rate of 12.9 per 100,000 exposed. The

TABLE 7.

MORTALITY FROM TRAUMATISM BY FALL,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*
Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over............ | 12.9 | 18.8 | 8.9 | 13.3 | 5.3 |
| 1 to 4...... | 10.1 | 11.7 | 7.7 | 19.9 | 9.5 |
| 5 to 9...... | 4.3 | 6.1 | 2.4 | 7.5 | 1.9 |
| 10 to 14..... | 3.1 | 4.8 | 1.1 | 5.1 | 2.5 |
| 15 to 19..... | 3.4 | 5.9 | 1.0 | 5.4 | 1.8 |
| 20 to 24..... | 4.4 | 8.8 | .9 | 5.6 | 2.4 |
| 25 to 34..... | 7.2 | 15.5 | 1.9 | 8.8 | 2.3 |
| 35 to 44..... | 13.3 | 31.3 | 3.5 | 16.2 | 2.6 |
| 45 to 54..... | 20.9 | 42.6 | 9.7 | 22.1 | 5.8 |
| 55 to 64..... | 39.3 | 64.0 | 27.2 | 37.2 | 14.1 |
| 65 to 74..... | 103.8 | 116.5 | 105.4 | 51.8 | 57.5 |
| 75 and over.. | 243.9 | 208.5 | 288.0 | 68.6 | 108.9 |

* Falls from steam railroad trains, street cars, automobiles and other vehicles, as well as falls in mines or quarries, from machinery (travelling cranes, for example), and falls in burning buildings are classified under other headings. In short, not *all* falls are classified under "Traumatism by fall."

rate was highest for white males and least for colored females. Males of both the white and colored groups showed a higher rate for this cause of death than did females. The facts by age are given on page 19.

The death rate from traumatism by fall showed a high point for the ages 1 to 4 years in our experience. The rate for all persons was 10.1 per 100,000 exposed in this age group. This rate is not exceeded in any age period thereafter until the period 35 to 44 years is reached, when it begins to rise sharply. For this age period a rate of 13.3 per 100,000 exposed is recorded. After a series of increments the maximum rate for any age period is reached at the group of ages 75 years and over (243.9 per 100,000 exposed).

The fatal accident rate for this specific cause exhibits the same age characteristics for white males as we have pointed out for the entire experience with this exception: the rate for the age group 1 to 4 years is exceeded by that for 25 to 34 years instead of by that for 35 to 44 years. For white females, however, there seems to be a practically stationary death rate from this cause between 10 and 24 years. For the ages thereafter, a rapid increase in the rate is observed. For the highest age group in our series (75 years and over) the white female fatal accident rate for this specific cause exceeds the white male rate considerably. Colored males, with advancing age, show a gradually increasing death rate from this cause, beginning with the period 10 to 14 years. Colored females between 20 and 44 years show a fairly stationary rate from traumatism by fall.

The figures for the individual years from 1911 to 1916 do not show very marked differences. The highest rate was observed in 1913, 13.7 per 100,000, and the minimum in 1915, 11.9. Unlike the acute infections and the organic diseases, we may hardly expect a definite trend over a short period of years. The average rate of the six-year period, 12.9 per 100,000, may be taken as a fair indication of the present incidence of this cause of death. Nor is there any very marked difference in incidence of this condition among the insured and the general population, all ages considered. When we analyze the facts by age period, we find that up to age 25 the rates are very much the same. Beyond that period the figures are higher for the insured group. This is especially so among the males where the occupational factor is important as a fruitful

source of mortality among wage earners. Thus, at some age periods of advanced life, such as 55 to 64 years, the rate is very much higher among insured white males than among males in the Registration Area, the rates being 64.0 and 38.1 per 100,000, respectively.

## ACCIDENTAL DROWNING.*

The 5,757 deaths from drowning during the period 1911 to 1916 correspond to a rate of 10.7 per 100,000 exposed. As might be expected, the rate shows a very marked difference for the two sexes. The rate for white males is a little less than eight times the rate for white females. Colored males show a rate from this cause more than ten times the rate for colored females.

### *Deaths from Accidental Drowning by Color, Sex and by Age Period.*

The death rates per 100,000 for accidental drowning, according to color, age and sex classes are presented in the following table:

TABLE 8.

MORTALITY FROM ACCIDENTAL DROWNING,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over.......... | 10.7 | 20.1 | 2.6 | 23.2 | 2.1 |
| 1 to 4...... | 6.2 | 9.1 | 3.6 | 5.8 | 1.9 |
| 5 to 9 ..... | 10.2 | 18.6 | 2.3 | 10.7 | 1.6 |
| 10 to 14..... | 13.9 | 23.8 | 2.7 | 34.8 | 2.8 |
| 15 to 19..... | 17.0 | 27.4 | 4.7 | 50.2 | 2.6 |
| 20 to 24..... | 12.7 | 22.0 | 4.4 | 30.2 | 2.6 |
| 25 to 34..... | 9.0 | 17.8 | 1.7 | 25.2 | 1.5 |
| 35 to 44..... | 8.0 | 18.7 | 1.2 | 15.6 | 2.1 |
| 45 to 54..... | 9.3 | 21.5 | 1.9 | 16.3 | 2.9 |
| 55 to 64..... | 8.7 | 21.3 | 1.3 | 10.2 | 2.2 |
| 65 to 74.... | 9.1 | 21.9 | 1.6 | 11.7 | 1.2 |
| 75 and over.. | 9.1 | 22.7 | 2.5 | — | — |

* Under this heading are classified, first, the deaths from drowning that are known to be accidental and, second, those which are not definitely reported as accidental but which can not be identified as suicidal or homicidal.

The death rates for accidental drowning are highest for persons under age 25 years. Considering all persons in this experience combined, the maximum rate is reached in the age period 15 to 19 years, 17.0 per 100,000 exposed. After this period, there is a decline in the rate from this cause up to and including the period 35 to 44 years. After that period we show a slightly variable death rate, tending to vary somewhat around an average of 9.0 per 100,000 exposed at these ages.

White males show a maximum rate in the period 15 to 19 years and a declining rate thereafter up to and including 25 to 34 years. Between 45 and 74 years, the rate is almost stationary at a little more than 21 per 100,000 exposed.

The colored male statistics also show a maximum rate between 15 and 19 years of age, 50.2 per 100,000 exposed. The reader will observe that this rate is practically twice the rate recorded for white males between these ages. The colored male rate is higher than the white male rate from 10 years up to and including the age period 25 to 34 years, but is lower thereafter.

Considering the series of years 1911 to 1916, we are again unable to detect any distinct downward tendency in the death rate from this cause. The rates seem to vary but slightly from a figure of a little more than 10 per 100,000 exposed for all classes in the experience. The highest death rate was recorded in 1913, 12.1 per 100,000, and the lowest in 1916, 9.7 per 100,000. During this period the death rate from this cause showed two points of maximum incidence, in 1913 and in 1915. The high rate for 1913 is perhaps explained by the floods in the Ohio River Valley in the spring of that year. The figures for 1915 result from the inclusion of the deaths reported in connection with the EASTLAND disaster in Chicago. There were, in fact, 171 deaths of policyholders reported as arising out of this catastrophe.

The death rate from drowning among white male policyholders was higher at every age period with the exception of the years under five than among males in the general population. The reader will observe that a comparison of the death rates for this accidental cause in the two experiences is first conditioned by the differences in the areas covered by the two experiences. It is evident that for a population situated near water courses, where there is opportunity for employment in the pursuits connected with navigation, one may expect a

higher death rate for accidental drowning. We are not able to say whether the differences in the hazards of accidental drowning are greater in the localities covered by this Company than in those areas comprising the total Registration Area of the United States.

## BURNS (CONFLAGRATION EXCEPTED).*

The 4,714 deaths from burns in this mortality experience of insured wage earners during the six-year period 1911 to 1916 represented a rate of 8.8 per 100,000 exposed.

The rate for this cause among white males was lower than among the other three color and sex classes of this experience. The colored death rates for males and females were higher than the white death rates in the corresponding sex classes. Colored females showed a rate for burns practically one and one-half times that of white females.

The death rates according to color, sex and age distinctions are set forth in the following table:

TABLE 9.

MORTALITY FROM BURNS (CONFLAGRATION EXCEPTED),* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over............ | 8.8 | 7.2 | 9.3 | 8.4 | 14.3 |
| 1 to 4..... . | 43.8 | 42.8 | 40.0 | 74.3 | 76.8 |
| 5 to 9...... | 10.4 | 6.7 | 12.5 | 9.4 | 30.1 |
| 10 to 14..... | 2.6 | 1.2 | 3.7 | 2.5 | 7.1 |
| 15 to 19..... | 2.1 | 1.1 | 2.7 | 2.6 | 5.9 |
| 20 to 24..... | 3.0 | 1.7 | 3.3 | 3.0 | 7.7 |
| 25 to 34..... | 3.2 | 1.9 | 3.7 | 3.3 | 5.0 |
| 35 to 44..... | 4.3 | 3.2 | 4.6 | 4.6 | 6.0 |
| 45 to 54....· | 6.7 | 4.6 | 7.5 | 3.9 | 12.8 |
| 55 to 64..... | 10.0 | 5.8 | 11.4 | 7.8 | 20.7 |
| 65 to 74..... | 20.3 | 8.8 | 23.4 | 23.4 | 55.2 |
| 75 and over.. | 41.8 | 17.0 | 49.4 | 41.2 | 118.0 |

* Burns and scalds due to railroad machinery, and mining accidents, as well as those caused by electricity and lightning are not classified under this heading. This explains, to some extent, the comparatively low rate for males.

The age characteristics of this cause of death present a maximum rate in the entire experience at the ages under 5 years, a decline to a minimum between the ages 15 to 19 years and a gradual rise in the rate for succeeding age periods to a figure approaching the maximum at ages 75 years and over. The conformation of the mortality curve for burns is in general the same for each of the color and sex classes of this experience, although, as we have pointed out, the actual figures show considerable differences.

From the figures at hand no upward or downward tendency of the death rate for burns is evident.

The incidence of fatal burns is higher among the insured than in the general population at a number of age periods. Thus, among insured white males, there is an excess in the ages under 10, and after 45. The figures for all ages combined are in favor of the general population, 6.2 per 100,000 as compared with 7.2 for insured white males. Comparison of the mortality facts for burns among insured white females and among females in the general population shows no important differences in the experience of the two groups.

### Steam Railroad Accidents and Injuries.

Fatalities arising out of railroad accidents are an important element in mortality experiences generally. Among the wage earners represented in this study we recorded during the period 1911 to 1916, 4,485 deaths arising from railroad accidents and injuries. These deaths corresponded to a rate of 8.3 per 100,000 exposed. For colored males we recorded a higher rate, 17.3 per 100,000, than for white males, 16.8 per 100,000. The colored female rate is higher than the corresponding white rate, but that for each group of females is low.

The death rate from this cause shows a minimum at the ages under 5 years and a maximum at the highest age group in this discussion. There is a fairly progressive rise in the rate by age period throughout life. Between 20 and 54 years of age, however, there is no upward tendency. After the latter age period the rate rises quite sharply. The same general age charateristics in the mortality rate from this cause are shown for white males as for the general experience. White females show no important

mortality from this cause at the ages under 45 years. Beyond that age, however, a rising rate is in evidence for this group.

The table below exhibits the data for steam railroad accidents and injuries according to the several color, sex and age classes:

TABLE 10.

MORTALITY FROM STEAM RAILROAD ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over............ | 8.3 | 16.8 | 1.2 | 17.3 | 1.6 |
| 1 to 4...... | 1.1 | 1.5 | .7 | .6 | — |
| 5 to 9...... | 2.3 | 3.9 | .8 | 3.6 | .3 |
| 10 to 14..... | 3.5 | 6.1 | .7 | 7.0 | .6 |
| 15 to 19..... | 8.4 | 15.2 | 1.2 | 19.8 | 1.5 |
| 20 to 24..... | 11.8 | 25.1 | .7 | 25.0 | 1.1 |
| 25 to 34..... | 11.3 | 26.6 | .7 | 20.7 | 1.6 |
| 35 to 44..... | 10.7 | 26.7 | .7 | 19.8 | 2.4 |
| 45 to 54..... | 11.3 | 27.1 | 1.7 | 21.5 | 1.8 |
| 55 to 64..... | 15.6 | 35.3 | 3.6 | 27.6 | 2.2 |
| 65 to 74..... | 17.3 | 39.4 | 4.1 | 23.4 | 4.7 |
| 75 and over.. | 17.8 | 34.0 | 5.9 | 41.2 | 27.2 |

Colored males show a rather variable rate with age. There is a rising incidence for the ages under 25 years. Between 25 and 74 years the rate tends to vary somewhat between 20 and 28 per 100,000 exposed. Beyond the latter age period our figures are not of much significance. The rates by age for colored females are too small and too variable to warrant extended discussion.

Considering the period as a whole, there appears to be a decrease in the rate, especially among white males. The three years, 1914 to 1916, however, show a slight upward tendency.

In the following table we present our data for railroad accidents and injuries for single years from 1911 to 1916:

TABLE 11.

MORTALITY FROM STEAM RAILROAD ACCIDENTS AND INJURIES, CLASSIFIED BY
COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911
to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916 | 8.3 | 16.8 | 1.2 | 17.3 | 1.6 |
| 1916.... | 7.9 | 15.3 | 1.3 | 18.5 | 1.8 |
| 1915.... | 7.4 | 15.0 | 1.0 | 16.0 | 1.1 |
| 1914.... | 7.5 | 15.1 | 1.0 | 16.0 | 1.3 |
| 1913.... | 9.0 | 18.8 | 1.1 | 16.9 | 1.2 |
| 1912.... | 9.2 | 18.5 | 1.4 | 17.6 | 2.2 |
| 1911.... | 9.5 | 19.2 | 1.3 | 18.6 | 2.2 |

AUTOMOBILE ACCIDENTS AND INJURIES.

Automobile accidents and injuries are beginning to constitute an important cause of accident fatality. In the six years under discussion we registered 2,507 deaths from this cause. The death rate

TABLE 12.

MORTALITY FROM AUTOMOBILE ACCIDENTS AND INJURIES, CLASSIFIED BY
COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over........... | 4.7 | 8.1 | 2.3 | 4.6 | 1.3 |
| 1 to 4...... | 3.7 | 4.5 | 2.9 | 3.8 | 1.3 |
| 5 to 9...... | 8.6 | 12.5 | 4.9 | 10.4 | 3.2 |
| 10 to 14..... | 5.1 | 8.5 | 1.8 | 6.3 | 1.6 |
| 15 to 19..... | 2.9 | 4.9 | 1.2 | 3.5 | .3 |
| 20 to 24..... | 3.2 | 5.9 | 1.5 | 2.0 | .8 |
| 25 to 34..... | 3.0 | 6.4 | 1.0 | 2.9 | .9 |
| 35 to 44..... | 3.2 | 6.6 | 1.6 | 3.6 | .3 |
| 45 to 54..... | 4.4 | 9.1 | 2.0 | 3.3 | 1.8 |
| 55 to 64..... | 7.3 | 14.1 | 3.6 | 7.8 | 2.2 |
| 65 to 74..... | 9.5 | 18.6 | 4.5 | 6.7 | 4.7 |
| 75 and over.. | 10.1 | 17.0 | 6.7 | 13.7 | — |

was 4.7 per 100,000 exposed. The highest death rate was shown for white males and the least for colored females. The color, sex and age statistics.for automobile accidents and injuries are shown on previous page (Table 12).

There is a high point of mortality from automobile accidents and injuries at each end of the age curve. There is one very high rate in childhood between 5 and 9 years and another in old age at the period 75 years and over, although the ages beginning with 55 years are all heavily weighted with automobile deaths. Males of both color groups in this experience show a higher death rate than do females.

According to our records there is a progressively increasing death rate year by year from this cause. In 1911 we recorded a rate of 2.3 per 100,000 exposed. In 1916 the rate had increased to 7.4 per 100,000. This corresponds to an increase of 221.7 per cent. in the rate. The following table and Chart II on page 28 show the general trend of the death rate for automobile fatalities:

TABLE 13.

MORTALITY FROM AUTOMOBILE ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916 | 4.7 | 8.1 | 2.3 | 4.6 | 1.3 |
| 1916.... | 7.4 | 12.9 | 3.4 | 8.2 | 2.5 |
| 1915.  . | 5.4 | 9.4 | 2.6 | 5.7 | 1.3 |
| 1914 ... | 4.8 | 8.5 | 2.4 | 4.2 | .8 |
| 1913.... | 4.1 | 7.5 | 1.9 | 3.8 | 1.2 |
| 1912.... | 3.0 | 4.8 | 1.8 | 2.9 | .7 |
| 1911.... | 2.3 | 4.0 | 1.1 | 1.9 | 1.1 |

Available population mortality data show a similarly increasing rate for automobile fatalities. This fact calls for further inquiry into the causes contributing to this category of traffic accidents, especially in cities where the growth of population and the volume of street traffic conduce to an increase in liability to automobile accidents.

**Chart II.—Mortality from Automobile Accidents and njurie s**

Death Rates per100,000Persons Exposed By Single Years 1911 to 1916

Experience of Metropolitan Life Insurance Company, Industrial Department



Death Rate per 100,000

White Males ——————

White Females ————————

Colored Males ——————

Colored Females ————————
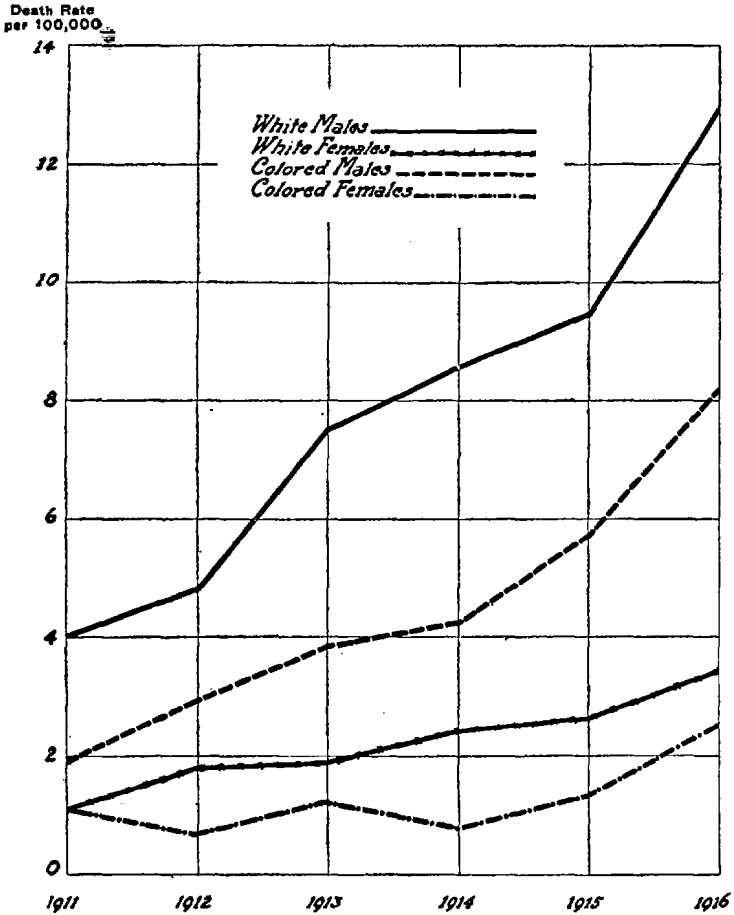
## STREET CAR ACCIDENTS AND INJURIES.

Fatalities registered as street car accidents and injuries in this experience included deaths, not only of persons riding on or operating street cars, but also those deaths on elevated and subway trains and on tracks and rights of way of street railways, interurban roads operated electrically, subways and elevated railroads. There were registered 1,600 deaths from this cause, the corresponding rate being 3.0 per 100,000 exposed in the six years under observation. The rate is highest among white males and least among colored females.

There is a fairly high rate for the ages under 5 years and a declining one thereafter through the age period 20 to 24 years. After that age group, however, the rate increases up to the maximum at the highest age group in our series. The same general observations apply to the experience of white males and white females. For the former, however, the age groups 5 to 9 years and 20 to 24 years show increases over those immediately preceding, while for the latter the decline continues through the period 25 to 34 years. The data for colored lives according to age group are based upon a small

TABLE 14.

MORTALITY FROM STREET CAR ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
| --- | --- | --- | --- | --- | --- |
| | | Males. | Females. | Males. | Females. |
| All ages—one and over............. | 3.0 | 5.3 | 1.2 | 4.1 | .9 |
| 1 to 4...... | 2.7 | 3.0 | 2.5 | 1.9 | 1.9 |
| 5 to 9...... | 2.6 | 3.6 | 1.6 | 3.2 | 1.3 |
| 10 to 14..... | 1.6 | 2.6 | .6 | 1.9 | .9 |
| 15 to 19..... | 1.6 | 2.4 | .5 | 4.5 | .6 |
| 20 to 24..... | 1.4 | 2.7 | .4 | 2.0 | .3 |
| 25 to 34..... | 2.1 | 4.9 | .2 | 3.4 | .2 |
| 35 to 44..... | 3.1 | 7.5 | .5 | 4.6 | .8 |
| 45 to 54..... | 4.9 | 11.1 | 1.4 | 5.2 | 2.4 |
| 55 to 64..... | 7.8 | 15.3 | 3.8 | 9.0 | 1.3 |
| 65 to 74..... | 10.3 | 20.6 | 4.4 | 13.3 | 2.3 |
| 75 and over.. | 22.1 | 41.1 | 12.6 | 27.4 | — |

number of deaths under 20 years of age and there is, therefore, some irregularity in the rates for the divisional periods of life. From twenty years of age upward among colored males an increasing death rate from this cause is found.

The table on page 29 gives the rates for street car accidents, and injuries by color, sex and by age period.

For the six years under discussion a generally declining death rate from this cause is observed. This is in contradistinction to the observed facts for automobile accidents and injuries. The following table gives a view of the trend of this phase of the mortality experience for the period 1911 to 1916:

TABLE 15.

MORTALITY FROM STREET CAR ACCIDENTS AND INJURIES, CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916 | 3.0 | 5.3 | 1.2 | 4.1 | .9 |
| 1916.... | 2.6 | 4.4 | 1.2 | 3.5 | .9 |
| 1915.... | 2.2 | 3.9 | .9 | 2.1 | .9 |
| 1914.... | 2.7 | 4.5 | 1.1 | 4.2 | 1.4 |
| 1913.... | 3.6 | 6.4 | 1.4 | 4.6 | 1.2 |
| 1912.... | 3.5 | 6.4 | 1.4 | 4.6 | .5 |
| 1911.... | 3.6 | 6.7 | 1.3 | 5.8 | .5 |

## INJURIES BY OTHER VEHICLES.

The record of deaths from injuries by "other vehicles" is also available. Under this group, 1,658 deaths were included arising from accidents and injuries to passengers, pedestrians, drivers or riders on wagons, carriages, bicycles and other miscellaneous forms of vehicles not motor driven. The rate, 3.1 per 100,000 exposed, is similar to that for street car accidents and injuries.

The following table gives the rates per 100,000 by color, sex and age period:

## TABLE 16.

MORTALITY FROM INJURIES BY OTHER VEHICLES, CLASSIFIED BY COLOR, SEX
AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons. | White. | | Colored Males. |
|---|---|---|---|---|
| | | Males. | Females. | |
| All ages—one and over. | 3.1 | 5.7 | .9 | 5.6 |
| 1 to 4 | 3.8 | 4.6 | 3.2 | 2.6 |
| 5 to 9 | 3.8 | 6.0 | 1.5 | 5.5 |
| 10 to 14 | 1.6 | 2.8 | .5 | 2.8 |
| 15 to 19 | 1.8 | 3.0 | .5 | 4.5 |
| 20 to 24 | 2.0 | 4.0 | .5 | 2.6 |
| 25 to 34 | 2.4 | 5.6 | .3 | 3.9 |
| 35 to 44 | 3.2 | 7.7 | .3 | 6.0 |
| 45 to 54 | 4.6 | 10.1 | 1.0 | 10.7 |
| 55 to 64 | 5.0 | 11.4 | .9 | 12.0 |
| 65 to 74 | 8.2 | 16.1 | 3.1 | 16.7 |
| 75 and over | 5.3 | 12.8 | .8 | 13.7 |

There seems to be a slight downward tendency in this group of
specific causes of accidental injury. The following table gives a
survey of the death rates over the period 1911 to 1916:

## TABLE 17.

MORTALITY FROM INJURIES BY OTHER VEHICLES, CLASSIFIED BY COLOR AND
BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911
to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Year. | Persons. | White. | | Colored. |
|---|---|---|---|---|
| | | Males. | Females. | Males. |
| 1911 to 1916 | 3.1 | 5.7 | .9 | 5.6 |
| 1916 | 2.8 | 5.4 | .7 | 6.0 |
| 1915 | 3.0 | 5.6 | .8 | 6.2 |
| 1914 | 2.9 | 5.4 | .9 | 4.4 |
| 1913 | 3.4 | 6.4 | 1.4 | 3.6 |
| 1912 | 3.4 | 6.2 | .9 | 7.3 |
| 1911 | 3.1 | 5.5 | 1.0 | 6.0 |

The death rate for this group of miscellaneous vehicular injuries is stationary for the age periods under 10 years, and declines to a minimum rate between 10 and 14 years. It then.gradually rises to a maximum in the age period 65 to 74 years. There was a slightly higher rate for white males than for colored males. White females had a low rate of .9 per 100,000 exposed. The deaths among colored females were too few to give any significance to the rates. No figures for this class are therefore presented.

## TRAUMATISM BY MACHINES.*

A total of 905 deaths from traumatism by machines is recorded. It will be understood that this title includes deaths by means of machines in most industries and through mechanisms such as elevators, which are not always concerned in industrial processes. This latter fact does not materially affect our figures, however, for the main working period in life. The experience available, according to age period, for all persons exposed to risk in this investigation, and for white males and colored males is shown in the following table. The experience for females is not significant.

TABLE 18.

MORTALITY FROM TRAUMATISM BY MACHINES,* CLASSIFIED BY COLOR FOR
MALES, AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons in Total Experience. | White Males. | Colored Males. |
|---|---|---|---|
| All ages—one and over.... | 1.7 | 3.4 | 4.8 |
| 1 to 14........ | .3 | .4 | .5 |
| 15 to 19........ | 2.3 | 4.2 | 5.1 |
| 20 to 24........ | 2.1 | 4.5 | 4.6 |
| 25 to 34........ | 1.9 | 4.0 | 6.5 |
| 35 to 44........ | 2.7 | 6.7 | 6.2 |
| 45 to 54........ | 3.2 | 7.7 | 9.8 |
| 55 to 64........ | 3.0 | 7.7 | 6.6 |
| 65 to 74........ | 2.3 | 6.0 | 1.7 |
| 75 and over..... | 1.9 | 1.4 | 13.7 |

* Deaths caused by machinery accidents in mines and quarries are classified under title No. 173 (Traumatism in mines and quarries); those due to locomotives are charged to one of the subtitles of title No. 175 (Steam railroad accidents and injuries).

The rate for white males does not vary much from the figure of four per one hundred thousand between fifteen and thirty-five years of age. The rate rises after that age to a figure of 7.7 per one hundred thousand between forty-five and sixty-five years of age and declines thereafter. The rates for this cause of death are, in general, higher among colored males than among white males. The maximum rate for colored males was observed in the age period forty-five to fifty-four years, when it was 9.8 per 100,000 exposed.

There was a fairly stationary tendency in the death rate from this cause in the present experience covering the period 1911 to 1916. The following table gives the facts for each calendar year in the investigation:

TABLE 19.

MORTALITY FROM TRAUMATISM BY MACHINES,* CLASSIFIED BY COLOR FOR MALES.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons In Total Experience | White Males. | Colored Males. |
|---|---|---|---|
| 1911 to 1916............. | 1.7 | 3.4 | 4.8 |
| 1916.......... | 1.7 | 3.4 | 5.3 |
| 1915.......... | 1.4 | 2.9 | 3.4 |
| 1914.......... | 1.5 | 3.3 | 2.9 |
| 1913.......... | 2.0 | 4.1 | 5.4 |
| 1912.......... | 1.7 | 3.2 | 5.6 |
| 1911.......... | 1.8 | 3.4 | 6.9 |

* See footnote for Table 18 on preceding page.

A brief comparison of our data with those for the Registration Area shows that for the latter part of the main working periods of life the death rate from traumatism by machines is higher among insured white males than among males in the corresponding age groups in the Registration Area of the United States. No precise interpretation can be placed upon this fact, however, because we do not have any clue as to the approximate number of persons in both experiences exposed to risk from machinery. But it is reasonable to assume that there is a considerably larger proportion of persons exposed to machine hazards in a group such as that comprised in the insurance experience than there is in the general population of the Registration Area.

3

"OTHER ACUTE POISONINGS"* (FOOD POISONINGS EXCEPTED).

All accidental poisonings in this experience have been reported under two heads: "poisoning by food" and "other acute poisonings." The second of these titles, which includes the larger number of these deaths, relates to those caused by solid or liquid poisons, excepting alkaloid products of putrefaction and other poisons in food products.

In this experience for insured wage earners 1,144 deaths from this specific cause of accidental violence occurred. The rates are slightly higher for the colored than for the white of each sex.

The age and sex characteristics for the white group only are given in the following table:

TABLE 20.

MORTALITY FROM "OTHER ACUTE POISONINGS,"* WHITE PERSONS CLASSIFIED BY SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons in Total Experience. | White. | |
|---|---|---|---|
| | | Males. | Females. |
| All ages—one and over.... | 2.1 | 2.4 | 1.8 |
| 1 to 4......... | 7.9 | 7.6 | 7.1 |
| 5 to 9......... | .8 | 1.0 | .5 |
| 10 to 14........ | .2 | .3 | .2 |
| 15 to 19........ | .8 | .5 | 1.2 |
| 20 to 24........ | 1.7 | 1.4 | 1.7 |
| 25 to 34......... | 2.2 | 2.4 | 2.2 |
| 35 to 44........ | 2.1 | 2.5 | 1.9 |
| 45 to 54........ | 2.3 | 4.3 | 1.3 |
| 55 to 64........ | 2.7 | 4.8 | 1.8 |
| 65 to 74........ | 3.5 | 5.6 | 2.5 |
| 75 and over..... | 4.3 | 7.1 | 3.3 |

"Other acute poisonings" show the maximum death rate under 5 years of age, the minimum death rate between 10 and 14 years and a fairly regularly rising rate thereafter. Between 25 and 54

* Deaths reported from "poisoning," "carbolic acid poisoning," "bichloride of mercury poisoning," etc., although not reported as accidental, are classified here unless identified as due to suicide or homicide. Deaths caused by accidental inhalation of poisonous gases are classified under another heading; see page 36.

years there is a slackening in the rise in the death rate. After 55 years of age the rate rises again rapidly. The rates for males exceed those for females very generally throughout life.

A slight downward tendency in the death rate for this cause is in evidence recently. In 1914 the maximum rate (2.6 per 100,000) was registered; the minimum rate was 1.6 per 100,000 in 1916. Considering the series of years from 1911 to 1916, we may perhaps be justified in concluding that recent efforts toward restriction of the sale of poisonous substances have had some favorable influence upon the death rate from acute accidental poisonings. We must remember, however, that the recently increased tendency to specify suicidal and homicidal findings in cases which would have been formerly returned as undefined violence, may have had some influence in reducing the recorded death rate for acute accidental poisonings. The following table gives the death rates for " Other acute poisonings " (food poisonings excepted) by single calendar years during the period 1911 to 1916 classified according to color and sex:

TABLE 21.

MORTALITY FROM " OTHER ACUTE POISONINGS,"* CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916...... | 2.1 | 2.4 | 1.8 | 2.7 | 2.0 |
| 1916....... | 1.6 | 1.8 | 1.5 | 1.8 | 1.4 |
| 1915....... | 2.0 | 2.2 | 1.5 | 3.4 | 2.4 |
| 1914....... | 2.6 | 3.3 | 2.1 | 3.5 | 2.1 |
| 1913....... | 2.2 | 2.4 | 1.9 | 3.2 | 1.5 |
| 1912....... | 2.3 | 2.4 | 2.1 | 2.5 | 2.4 . |
| 1911....... | 2.2 | 2.3 | 2.2 | 1.7 | 2.2 |

The available population experience also shows a slightly downward trend.

* See footnote on page 34.

### ABSORPTION OF DELETERIOUS GASES.*

By far the largest proportion of deaths included under this title were caused by accidental inhalation of illuminating gas. There was, of course, a significant number of deaths from the absorption of other poisonous gases and vapors, such as sewer gas, anesthetic vapors, and gases evolved in the domestic and industrial operation of stoves and furnaces.

The following table gives the data for this cause of death with respect to color, sex and age classes of the experience:

TABLE 22.

MORTALITY FROM ABSORPTION OF DELETERIOUS GASES,* CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*
Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over .......... | 2.7 | 3.9 | 1.9 | 2.3 | .9 |
| 1 to 4 ........ | 1.0 | 1.0 | 1.0 | 1.3 | 1.3 |
| 5 to 9 ........ | .7 | .7 | .7 | — | .3 |
| 10 to 14 ....... | .8 | 1.2 | .4 | .6 | .3 |
| 15 to 19 ....... | 1.1 | 1.2 | 1.2 | 1.0 | .6 |
| 20 to 24 ....... | 1.8 | 2.7 | 1.1 | 1.6 | 1.3 |
| 25 to 34 ....... | 2.3 | 3.5 | 1.5 | 2.8 | 1.5 |
| 35 to 44 ....... | 3.4 | 6.8 | 1.7 | 3.6 | .7 |
| 45 to 54 ....... | 5.4 | 10.1 | 3.2 | 5.5 | 1.0 |
| 55 to 64 ....... | 8.5 | 15.6 | 5.7 | 1.8 | .4 |
| 65 to 74 ....... | 12.2 | 21.0 | 8.6 | 3.3 | 1.2 |
| 75 and over.... | 20.2 | 28.4 | 18.4 | — | — |

There were 1,431 deaths reported for this cause. This number of deaths represented a rate of 2.7 per 100,000 persons exposed. The highest death rate was recorded for white males, 3.9 per 100,000, the next highest for colored males, 2.3 per 100,000, followed by the rate for white females, 1.9 per 100,000. The death rate from this cause among colored females was .9 per 100,000 of such persons exposed. Under twenty years of age the rate for both sexes varies from .7 to 1.1 per 100,000 persons exposed. After twenty

* Deaths reported as due to "asphyxia by gas," "gas poisoning," "illuminating gas poisoning," etc., although not reported as accidental, are classified here unless identified as due to suicide or homicide.

years of age it rises gradually from a figure of 1.8 per 100,000 in the age group 20 to 24 years to 20.2 in the highest age group in this series. Under twenty years of age, only one period shows a difference between the death rate for this cause of white males and white females. Beginning with the age period 20 to 24 years, however, the rate for accidental poisoning by deleterious gases among white males was significantly higher than that among white females. Thus, for the age period 25 to 34 years, white males showed a rate of 3.5 per 100,000 and white females one of only 1.5 per 100,000. In the two next higher groups the excess of mortality among males was even more pronounced. In the age period 55 to 64 years the death rate for this cause among white males was 15.6 per 100,000 and among white females 5.7 per 100,000. The death rate among colored males was much higher after 25 years of age than among colored females.

TABLE 23.

MORTALITY FROM ABSORPTION OF DELETERIOUS GASES, CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females |
| 1911 to 1916........ | 2.7 | 3.9 | 1.9 | 2.3 | .9 |
| 1916........ | 2.9 | 4.5 | 1.8 | 3.3 | 1.4 |
| 1915........ | 2.3 | 3.6 | 1.6 | 1.3 | .5 |
| 1914........ | 2.9 | 4.2 | 2.1 | 1.5 | 1.3 |
| 1913........ | 2.5 | 3.4 | 1.9 | 2.2 | 1.0 |
| 1912........ | 3.0 | 4.3 | 2.2 | 3.7 | .7 |
| 1911........ | 2.3 | 3.4 | 1.8 | 1.5 | .7 |

The death rate throughout the period 1911 to 1916 seems to be fairly stationary for insured wage earners. It should be recalled that in former years a fairly significant number of deaths from illuminating gas poisoning was registered under this cause of death title which, if more modern methods of certifying causes of death had then been in vogue, would have been recorded under "suicide by asphyxia." This factor of improvement in the designation of illuminating gas deaths as suicides does not affect the

present figures from 1911 onward as much as it does other figures
which refer back perhaps fifteen years or more. It should be
borne in mind, however, in viewing the table on page 37, that this
matter of increased precision in the certification óf causes of death
may have affected our figures somewhat and that there may have
been, therefore, an actual, though slight, decline in the death rate
for this cause of death.

## TRAUMATISM BY FIREARMS.*

Accidental deaths due to injury by firearms were recorded in
1,029 cases in this mortality experience at a rate of 1.9 per 100,000
persons exposed. This cause of death has a distinct color and
sex incidence. The mortality rate among colored lives is decidedly
in excess of that among white lives. Colored males, for instance,
show a rate of 8.1 per 100,000 as compared with a rate of 3.0 for

TABLE 24.

MORTALITY FROM TRAUMATISM BY FIREARMS,* CLASSIFIED BY COLOR, SEX
AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over............ | 1.9 | 3.0 | .3 | 8.1 | 1.5 |
| 1 to 4...... | .9 | .9 | .5 | 2.6 | 3.2 |
| 5 to 9...... | 1.4 | 1.9 | .4 | 5.8 | 1.6 |
| 10 to 14..... | 3.2 | 5.4 | .3 | 10.4 | 1.6 |
| 15 to 19..... | 4.0 | 6.0 | .8 | 18.5 | .6 |
| 20 to 24..... | 2.5 | 3.5 | .2 | 13.5 | 3.7 |
| 25 to 34..... | 1.8 | 2.5 | .1 | 10.1 | 1.2 |
| 35 to 44..... | 1.5 | 2.2 | .3 | 5.2 | 2.0 |
| 45 to 54..... | .6 | 1.2 | .2 | .7 | .5 |
| 55 to 64..... | .7 | 1.2 | .2 | 1.8 | — |
| 65 to 74..... | .8 | 1.5 | .4 | 1.7 | — |
| 75 and over.. | — | — | — | — | — |

\* Under this title are classified, also, deaths reported from "gunshot
wound," "shot," etc., without qualification as to accidental, suicidal or
homicidal character. Every effort is made to obtain definite information,
however, in such cases, and they constitute only a small proportion of the
1,029 deaths classified here.

white males. A death rate of 1.5 per 100,000 is registered for colored females and a rate of only .3 per 100,000 for white females. The table on page 121 presents a statement of the death rates according to the several color, sex and age classes in this investigation.

Among white males the highest death rate for this means of injury occurs between 15 and 19 years of age with a declining death rate thereafter up to the advanced ages in this series. Among colored males, also, the highest death rate occurs between 15 and 19 years of age. It will be noted also that the death rate for this cause between 5 and 9 years among colored males (5.8 per 100,000) is almost as high as the maximum rate for white males (6.0). A very large proportion of these deaths in late childhood and in adolescence are caused by children playing with firearms and by reckless youths in the pursuit of sport. A considerable number, no doubt, are of the "didn't know it was loaded" type. At this time of life death rates from all causes are at a reasonably low level. A further reduction of mortality in late childhood and adolescence could be accomplished, no doubt, by concentration upon the single fact of accidental death from firearms.

TABLE 25.

MORTALITY FROM TRAUMATISM BY FIREARMS, CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916...... | 1.9 | 3.0 | .3 | 8.1 | 1.5 |
| 1916 .... | 1.9 | 3.1 | .3 | 8.4 | .8 |
| 1915 .... | 1.7 | 2.7 | .4 | 5.7 | 1.7 |
| 1914 .... | 2.0 | 2.7 | .4 | 10.2 | 1.9 |
| 1913 .... | 2.2 | 3.5 | .5 | 9.3 | 1.5 |
| 1912 .... | 2.0 | 3.1 | .3 | 7.9 | 2.1 |
| 1911 .... | 1.7 | 2.8 | .3 | 7.3 | 1.1 |

The figures for the period 1911 to 1916, unfortunately, do not indicate any marked declining tendency in the death rate from this cause. The rate for each year approaches closely that for the sexennium, 1.9 per 100,000 exposed. In recent years in the Registra-

tion Area of the United States a practically stationary death rate has also been observed. How far the figures in each experience are reliable for purposes of determining the general trend of mortality from accidental shooting we cannot say at present. A considerable number of deaths have been reported in the more recent years of our experience as accidentally due to the use of firearms which would have been reported in former years in such manner as to justify tabulation under some indefinite title such as "Other external violence." The table on page 39 gives a brief view of the course of accidental mortality from firearms during the period 1911 to 1916.

## ACCIDENT FATALITIES ARISING OUT OF OR IN THE COURSE OF EMPLOYMENT.

The records of accident mortality of insured wage earners present a very favorable opportunity for the collection of informing statistics on fatalities arising out of or in the course of employment. We have already observed in the preceding sections a clear indication that these industrial policyholders suffer from higher accident death rates, almost uniformly, at ages where the occupational factor plays a part. Provision was therefore made early in the course of this study to distinguish and keep a record of those deaths where the occupation was clearly the primary cause of the accident. The period covered is only five years, from 1912 to 1916, inclusive. Although it was not possible to discover every case of occupational origin, there is nevertheless sufficient evidence to show that the cases overlooked or disguised were relatively few. In order to confine the data to the ages at which policyholders are gainfully employed the tabulations of deaths due to occupational violence have been limited to white males at the ages 15 years and over.

Thus, between 1912 and 1916, there were recorded 14,151 deaths from a group of selected and specific accidental causes of death, in which we might reasonably expect that occupation would play an important part. This number of 14,151 deaths does not, therefore, cover all of the deaths from occupational violence among white males 15 years of age and over. The following table gives the total number of accidental deaths reported for the specified accidents and injuries and the number and percentage of deaths of occupational origin:

TABLE 26.

NUMBER OF DEATHS FROM SPECIFIED ACCIDENTAL CAUSES OF DEATH AND
NUMBER AND PERCENTAGE OF SUCH DEATHS DUE TO OCCUPATIONAL
STRESS.

*White Males, Fifteen Years of Age and Over, 1912 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Cause of Death. | Total Deaths From Specified Form of Violence. | No. Deaths of Occupational Origin. | Percent. Deaths of Occupational Origin. |
|---|---|---|---|
| TOTAL SPECIFIED CAUSES...... | 14,151 | 3,963 | 28.0 |
| Conflagration ................ | 149 | 23 | 15.4 |
| Burns........................ | 333 | 61 | 18.3 |
| Absorption of deleterious gases..... | 665 | 41 | 6.2 |
| Accidental drowning............. | 2,381 | 151 | 6.3 |
| Traumatism by fall............... | 2,889 | 685 | 23.7 |
| Traumatism in mines and quarries.. | 443 | 405 | 91.4 |
| Traumatism by machines.......... | 585 | 473 | 80.9 |
| Railroad accidents and injuries..... | 2,710 | 954 | 35.2 |
| Street car accidents and injuries.... | 710 | 137 | 19.3 |
| Automobile accidents and injuries | 890 | 97 | 10.9 |
| Other vehicular acc. and injuries .. | 733 | 321 | 43.8 |
| Other crushing acc. and injuries.... | 205 | 133 | 64.9 |
| Injuries by animals............... | 112 | 43 | 38.4 |
| Electricity—lightning excepted..... | 323 | 200 | 61.9 |
| Fractures—cause not specified ..... | 311 | 4 | 1.3 |
| Other external violence........... | 712 | 235 | 33.0 |

Out of the group of accidents selected from this experience of
white males, 15 years of age and over, we found 28 per cent. to
have been certified as arising out of or in the course of employment.
For the various types of accidents, or means of injury, the per-
centage of occupational deaths varies. Thus for traumatism in
mines and quarries the highest percentage of occupational acci-
dents was registered, namely, 91.4. Under "absorption of dele-
terious gases" there was recorded the lowest percentage for any of
the definite types of accidental violence, 6.2. It was found that 24
per cent. of the falls were certified to have occurred in the course of
the employment of the deceased. We do not deem it desirable at
the present time to apply these ratios to any other body of data
than to the one we have given. Our table and the accompanying
text will, it is hoped, stimulate further statistical inquiry, perhaps
in our published official vital statistics, into the number and per-
centage of deaths from violence arising out of industry.

An interesting corollary to the foregoing text on the probable
number of deaths due to occupational causes, is the comparison of

the variation from year to year in the ratio of deaths due to such occupational stress. The following table gives a survey of this situation by single years from 1912 to 1916:

TABLE 27.

MORTALITY FROM A GROUP OF SPECIFIED ACCIDENTAL CAUSES OF DEATH. NUMBER AND PERCENTAGE OF DEATHS DUE TO OCCUPATIONAL STRESS. *Single Years in Period 1912 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Total Deaths from Group of Specified Accidental Causes. | Number of Deaths of Occupational Origin. | Per Cent. Deaths of Occupational Origin. |
|---|---|---|---|
| 1912 to 1916 .... | 14,151 | 3,963 | 28.0 |
| 1916...... | 3,237 | 816 | 25.2 |
| 1915...... | 2,742 | 638 | 23.3 |
| 1914...... | 2,683 | 777 | 29.0 |
| 1913...... | 2,931 | 948 | 32.3 |
| 1912...... | 2,558 | 784 | 30.6 |

It would appear, therefore, from these figures that the proportion of deaths resulting from occupational accidents was on the decline during the five years under observation. The increase in the general accident rate for males at the ages 15 years and over must be due to other than occupational dangers, to which conclusion much other evidence points.

### Trend of the Death Rate for Accidents.

The table on page 43 gives the total accident death rate from 1911 to 1916, qualified according to the color and sex classes of our data.

We observe from the following data a rather variable accident death rate. The maximum figure in the total experience was recorded in 1913 at 77.6 deaths per 100,000 persons exposed and the minimum in 1915 with a rate of 67.3. Perhaps if we had a longer series of annual rates to consider, we should be able to detect a slight tendency toward decline in the death rate from accidents of all kinds. From the figures at hand we are unable to say definitely whether there has been any considerable reduction in the total accident rate among insured wage earners. The conditions of grave hazard in American life and industry may not have improved, therefore, to any great extent.

TABLE 28.

MORTALITY FROM ACCIDENTAL AND UNSPECIFIED FORMS OF VIOLENCE,* CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916...... | 73.0 | 115.9 | 36.4 | 121.4 | 38.8 |
| 1916....... | 73.2 | 118.7 | 34.8 | 122.7 | 37.5 |
| 1915....... | 67.3 | 105.8 | 34.7 | 108.5 | 37.7 |
| 1914....... | 69.9 | 109.3 | 36.5 | 118.2 | 35.5 |
| 1913....... | 77.6 | 124.9 | 37.2 | 134.8 | 39.6 |
| 1912....... | 73.8 | 115.2 | 37.2 | 128.4 | 41.2 |
| 1911....... | 77.4 | 123.6 | 38.8 | 116.5 | 41.6 |

* War deaths excluded.

For white females and for colored females we are able to detect a fairly consistent but slight downward trend of total accidents. This is perhaps an indication that the graver hazards which surround women in home life have been mitigated in part by the various educational and other efforts toward security of the person from accidental violence. The white male total accident rate fluctuates somewhat from year to year and from a view of the figures in our present series we do not feel able to say that there has been any marked change for better or worse in the accident situation as it affects this group. The colored male total accident rate likewise offers no particularly encouraging evidence that the graver general accident hazards surrounding wage earners have been mitigated to any great extent.

## SUICIDES.†

The suicide problem has in recent years attained considerable prominence in discussions of the aims and purposes of preventive

† Under "Suicides" are classified only those cases in which the fact of suicide or of attempt at suicide is clearly shown. By careful "editing" of our data relating to cause of death, hundreds of cases originally reported under such terms as "poisoning," "inhalation of gas," "drowning," "gunshot wound," "cut" and others have been added to this title instead of being placed under the class "accidental or unqualified."

medicine. Suicide is often a preventable source of mortality, especially when it is recalled that in many cases the suicidal impulse is the end product of a psychosis, which, if treated in good time, might have been relieved. That suicide is a serious source of mortality is indicated by the fact that in the six-year period of this experience 6,542 deaths from this cause were recorded. Interest attaches also to this mass of deaths because they have occurred among a group of wage earners. If, as has been supposed, the suicide death rate is a measure of the mental health of a people, the figures at our disposal should help us determine an important characteristic of the American industrial population in relation to that of other groups of the population. In the following table we present a statement of the suicide death rates for each of the color and sex classes of our data. Chart III graphically illustrates these age data.

TABLE 29.

MORTALITY FROM SUICIDE (ALL FORMS), CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

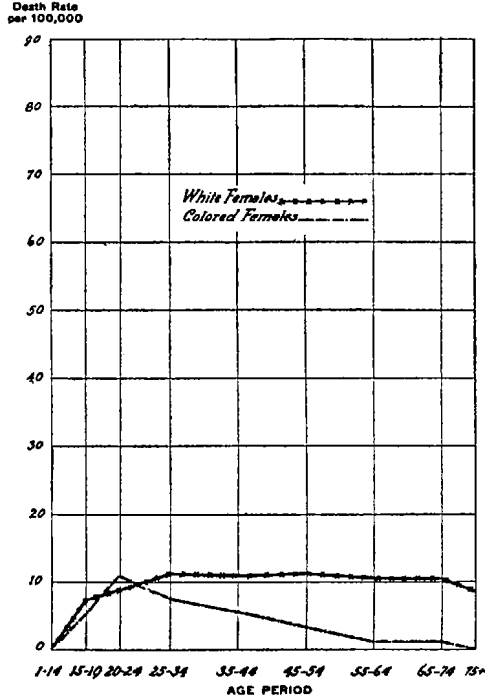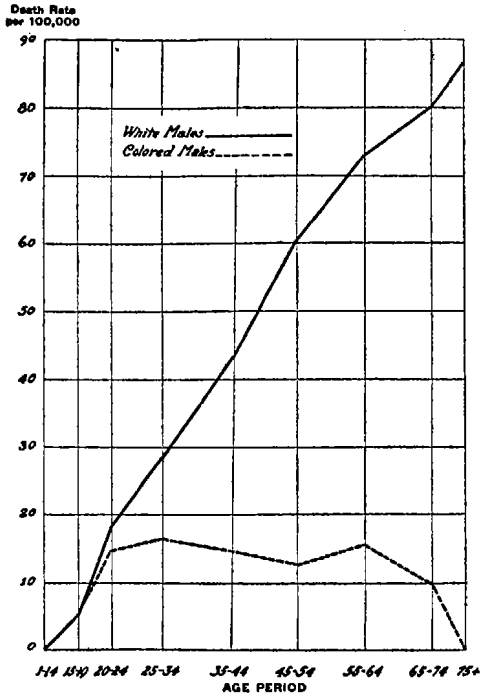*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Male. | Female. | Male. | Female. |
| All ages—one and over | 12.2 | 20.1 | 6.8 | 10.1 | 4.9 |
| 1 to 14 | .1 | .2 | .1 | .3 | .3 |
| 15 to 19 | 6.0 | 5.0 | 7.2 | 5.1 | 5.3 |
| 20 to 24 | 13.0 | 18.0 | 8.7 | 14.8 | 11.9 |
| 25 to 34 | 17.0 | 27.9 | 11.1 | 16.3 | 7.4 |
| 35 to 44 | 20.9 | 42.9 | 10.9 | 14.8 | 5.7 |
| 45 to 54 | 26.5 | 60.1 | 11.1 | 12.7 | 3.4 |
| 55 to 64 | 31.3 | 72.8 | 10.4 | 15.6 | 1.3 |
| 65 to 74 | 34.0 | 79.7 | 10.5 | 10.0 | 1.2 |
| 75 and over | 34.1 | 86.5 | 8.4 | — | — |

At all ages combined, the rate was 12.2 per 100,000 persons exposed. The group of white males shows the highest rate of any of the color or sex classes, followed by colored males, by white females and finally by colored females. Males of each color group show decidedly higher suicide rates than do females.

## Chart III.—MORTALITY FROM SUICIDE—ALL FORMS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods.   White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



Death Rate per 100,000

White Males _____
Colored Males _ _ _ _ _ _ _

Death Rate per 100,000

White Females _ _ _ _ _ _ _
Colored Females _ _ _ . _ _

AGE PERIOD

AGE PERIOD

*Suicide Mortality According to Color, Sex and Age.*

The age characteristics of these suicide data are also of signifi-
cance. Beginning with a rate of 6.0 per 100,000 between 15 and
19 years, we recorded a rising rate up to and including the highest
significant age period, 65 to 74 years. The age group 75 years and
over has been disregarded because of its heterogeneous age com-
position and the small number of lives exposed and of deaths re-
ported. This gradual upward slope of the curve for suicide mor-
tality probably reflects very largely the experience of the white
male group included in the figures for all persons. For white
males there is quite a sharp rise in the curve of suicide mortality,
from a figure of 5.0 per 100,000 between the ages 15 and 19 years
to a rate of 79.7 per 100,000 at the age period 65 to 74 years.
White females do not show as clearly this phenomenon of increas-
ing suicide mortality with age. Beginning with a figure of 7.2
per 100,000 at the age period 15 to 19 years, there is a gradual in-
crease to a rate of 11.1 for the age period 25 to 34 years. From
this group up to and including the period 65 to 74 years there is a
practically stationary suicide rate for white females, with little
variation from a figure of 10.5 per 100,000.

The suicide rate for colored males does not show any tendency
throughout the entire range of life toward either a decrease or an
increase with advancing age. After the age period 20 to 24 years
for colored females, we observe a distinct drop in the suicide rate
with advancing years, from a figure of 11.9 per 100,000 in the first
named age period to a rate of 3.4 per 100,000 in the period 45 to
54 years, the last age group for which we have significant figures.

 ˙In view of the importance of racial characters of suicide mor-
tality, it will be of some interest to consider the comparative ratios
of some of these mortality rates for the several color classes by sex
and age.

*Ratio of Suicide Mortality by Color.*

In a preceding section we indicated the lower suicide mortality
rate among colored persons. The colored male suicide rate was
only 50 per cent. of that shown for white males at all ages combined.
But this relation varies markedly at the several age periods. Be-
tween 15 and 19 years our figures indicate a slight excess in the
colored male suicide rate over the rate for white males, but this may
be purely accidental and of no real significance. Beginning with

the age period 20 to 24 years, the colored male suicide rate becomes increasingly more favorable in respect to the white male rate. Thus, while colored males showed a suicide mortality rate 82.2 per. cent. of that recorded for white males at the age period 20 to 24 years, the ratio was only 12.5 per cent. at the age period 65 to 74 years. Among colored females also, with the exception of the age period 20 to 24 years, we observe with advancing age an increasingly more favorable suicide rate. The foregoing facts are shown in the table given below:

TABLE 30.

MORTALITY FROM SUICIDE (ALL FORMS).

*Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Percentage, Colored of White Mortality. | |
| --- | --- | --- |
| | Males. | Females. |
| All ages—one and over....... | 50.2 | 72.1 |
| 15 to 19.......... | 102.0 | 73.6 |
| 20 to 24.......... | 82.2 | 136.8 |
| 25 to 34.......... | 58.4 | 66.7 |
| 35 to 44.......... | 34.5 | 52.3 |
| 45 to 54.......... | 21.1 | 30.6 |
| 55 to 64.......... | 21.4 | 12.5 |
| 65 to 74.......... | 12.5 | 11.4 |
| 75 and over ...... | — | — |

*Sex Ratio of Suicide Mortality.*

We have shown that for white persons, the female suicide rate was less than the male suicide rate, the ratio being about one to three. White males show a higher rate of self-destruction at all age periods with the exception of the period of 15 to 19 years.

There is a distinctly higher suicide rate among white females in this age of early adolescence than among white males. This phenomenon is also in evidence in such population figures as we have been able to find. It is possible that the stress and strain of early adolescence is more disastrous to females than to males. We might expect, also, to find a higher index of mental disorders among female adolescents than among males of the same ages on the basis of these suicide data. It may be noted in this connection that there is a much higher incidence rate of serious cases of

*dementia precox,* a form of dementia characteristic of adolescence
and early adult life, among females than among males in popula-
tions generally.   Thus, in New York State during 1916 there were
in the care of the hospitals for mental diseases under the super-
vision of the New York State Hospital Commission, 8,903 male and
10,046 female *dementia precox* cases.   At the ages in the popula-
tion from which these patients were drawn, there is a considerable
excess of males.   This would make the disparity between the male
and female *dementia precox* rates much greater than would be
indicated by the foregoing comparison of the sex ratios of such
patients under hospital care.

Beginning with the age period 20 to 24 years, the white male
suicide rate shows a very marked excess over the white female rate.
This excess increases with advancing age.   Between 20 and 24
years the white male suicide rate is 207 per cent. of the white female
rate, between 25 and 34 years, 251 per cent.; between 35 and 44
years, 394 per cent., increasing to a percentage of 759 at the age
period 65 to 74 years.

TABLE 31.

MORTALITY FROM SUICIDE (ALL FORMS).

*Percentage, Male of Female Mortality at Specified Age Periods for Each
Color Class.   1911 to 1916.*

Experience of Metropolitan Life Insurance Company.   Industrial
Department.

| Age Period. | Percentage, Male of Female Mortality. | |
|---|---|---|
| | White. | Colored. |
| All ages—one and over....... | 295.6 | 206.1 |
| 15 to 19  ......... | 69.4 | 96.2 |
| 20 to 24.......... | 206.9 | 124.4 |
| 25 to 34.......... | 251.4 | 220.3 |
| 35 to 44.......... | 393.6 | 259.6 |
| 45 to 54.......... | 541.4 | 373.5 |
| 55 to 64.......... | 700.0 | 1200.0 |
| 65 to 74.......... | 759.0 | 833.3 |
| 75 and over  ...... | 1029.8 | — |

Colored males also show a suicide death rate lower than that for
colored females at the age period 15 to 19 years, although the
advantage of the males in relation to the females among the colored
is not as great as that observed among the white lives.   Beginning
with the age period 20 to 24 years colored males showed a suicide

rate 124 per cent. of that recorded for colored females. There is much the same precipitate rise in the percentage of excess of male suicide mortality among colored persons as we found among white persons. The greatest difference is found in age period 55 to 64 when the rate for colored males is twelve times as high as for colored females. The foregoing observations are shown in tabular form on page 48.

*Suicide Experience of Insured Wage Earners and Population of Expanding Registration Area of the United States Compared.*

The suicide rates for white male insured wage earners are more favorable than the rates for males in the general population of the United States only for the ages under 25 years. Beginning with the age period 25 to 34 years we observe excesses in the suicide rate of white male wage earners—an excess of 5 per cent. for the period 25 to 34 years, of 20 per cent. for the period 35 to 44 years, of 17 per cent. for the period 45 to 54 and of 11 per cent. for the period 55 to 64 years. In other words, at the ages of early adolescence and early adult life white male wage earners show a more favorable suicide rate, but continuing through the main working period of life and up to the last age group registered in this table, the suicide rate of insured white males exceeds, and rises faster, than the rate for all males in the general population of the expanding Registration Area of the United States.

The suicide experience for insured white females is, however, more encouraging. Only between the ages 15 and 19 years and 25 and 34 years do we find an excess (very negligible) in the suicide rate of the insured group over females in the general population. For all other age periods, insured white females show a more favorable suicide rate than do females in the population of the expanding Registration Area of the United States. Moreover, between the ages 35 to 64 years, insured white females show a tendency to improve upon the already favorable ratio of their suicide rate to the rate for females in the general population. Between 35 and 44 years insured white females showed a rate 96.5 per cent. of that recorded for females in the general population; between 45 and 54 years, a rate of 88.8 per cent., and between 55 and 64 years, a rate 78.2 per cent. of that recorded for females in the general population. These observations are shown in the following table:

4

TABLE 32.

MORTALITY FROM SUICIDE (ALL FORMS).

*Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age Period. Insured White Lives in Experience of Metropolitan Life Insurance Company, Industrial Department (1911 to 1916) and General Population Experience of Expanding Registration Area of the United States (1910 to 1915).*

| Age Period. | Males. | | | Females. | | |
|---|---|---|---|---|---|---|
| | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. |
| All ages—one and over.... | 20.1 | 24.6 | 81.7 | 6.8 | 7.9 | 86.1 |
| 1 to 14 | .2 | .6 | 33.3 | .1 | .5 | 20.0 |
| 15 to 19 | 5.0 | 5.6 | 89.3 | 7.2 | 7.1 | 101.4 |
| 20 to 24 | 18.0 | 18.2 | 98.9 | 8.7 | 10.7 | 81.3 |
| 25 to 34 | 27.9 | 26.7 | 104.5 | 11.1 | 11.0 | 100.9 |
| 35 to 44 | 42.9 | 35.8 | 119.8 | 10.9 | 11.3 | 96.5 |
| 45 to 54 | 60.1 | 51.4 | 116.9 | 11.1 | 12.5 | 88.8 |
| 55 to 64 | 72.8 | 65.8 | 110.6 | 10.4 | 13.3 | 78.2 |
| 65 to 74 | 79.7 | 61.6 | 129.4 | 10.5 | 11.6 | 90.5 |
| 75 and over. | 86.5 | 61.5 | 140.7 | 8.4 | 9.8 | 85.7 |

## Suicide According to Principal Means of Injury.

The above discussion reviewed the principal facts of the suicide experience in the aggregate. A more intimate view, however, is afforded by a brief consideration of this phenomenon of self-

TABLE 33.

MORTALITY FROM SUICIDE (ALL FORMS).

*Number of Deaths, and Percentage of Deaths According to Specified Means of Injury. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Means of Injury. | Number of Deaths. | Percentage of Total. |
|---|---|---|
| SUICIDES—TOTAL .......... | 6,542 | 100.0 |
| Suicide by | | |
| Poison................ | 2,352 | 36.0 |
| Asphyxia.............. | 1,040 | 15.9 |
| Hanging or strangulation. | 761 | 11.6 |
| Drowning .......... | 316 | 4.8 |
| Firearms.............. | 1,519 | 23.2 |
| Cutting or piercing instruments ........ | 346 | 5.3 |
| Jumping from high places. | 107 | 1.6 |
| Crushing.............. | 33 | .5 |
| Other suicides .......... | 68 | 1.0 |

destruction according to the means of injury employed. In the preceding table we display the number of deaths reported according to the chief means of injury employed, and the percentage that each "means of injury" class constitutes of the total.

Poison was the chief means of suicide in the present experience. Of the total deaths from suicide, 36.0 per cent. were accomplished by this means. This ratio is, of course, not constant in all mortality experiences. For instance, in New York City, asphyxia is the principal mode of committing suicide for both males and females and in the Registration Area of the United States it would seem that firearms were the chief means of suicidal injury as regards males. Poisoning seems to be the mode most frequently chosen by females in the Registration Area, corresponding practically to the prevalence shown in the experience of the Industrial Department of this Company. Variation in the choice of means of suicidal injury depends, of course, upon numerous factors, such as legislative restriction upon the sale of poisons, firearms and other means of injury, the extent to which publicity is given to suicides in the newspapers of various localities, and other strictly local factors difficult to enumerate. We shall take up briefly the principal means of suicidal injury in this present experience.

### Suicide by Poison.*

There were 2,352 deaths from this cause concerned in the present investigation, in which either solid or liquid poisonous substances were employed. These deaths corresponded to a rate of 4.4 per 100,000 persons exposed. The age and sex characteristics of this cause of death are shown in Table 34 on page 52.

It will be seen that the maximum rate in the entire group for suicide by poison is that among white males in the age period 55 to 64 years. Among white females and colored males, the maximum figure is found in the age period 25 to 34 and among colored females even earlier, between 20 and 24 years.

The general trend of mortality from suicide by poison seems to be downward. This is indicated by the figures given in Table 35 on page 52.

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* Solid and liquid poisons only. Where poisonous gas is the means employed the death is classified under "Suicide by Asphyxia."

TABLE 34.

MORTALITY FROM SUICIDE BY POISON, CLASSIFIED BY COLOR, SEX AND BY
AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over ........ | 4.4 | 6.0 | 3.4 | 2.9 | 3.0 |
| 1 to 14..... | * | * | .1 | .1 | — |
| 15 to 19..... | 3.3 | 1.7 | 5.0 | 1.3 | 3.8 |
| 20 to 24..... | 6.2 | 6.7 | 5.9 | 3.0 | 8.5 |
| 25 to 34..... | 7.7 | 10.7 | 6.3 | 6.2 | 4.9 |
| 35 to 44..... | 7.5 | 14.1 | 4.5 | 4.8 | 3.1 |
| 45 to 54..... | 7.3 | 15.0 | 4.0 | 3.3 | 1.0 |
| 55 to 64..... | 8.1 | 17.6 | 3.7 | 1.8 | .4 |
| 65 to 74..... | 7.3 | 16.7 | 2.7 | — | — |
| 75 and over . | 3.8 | 8.5 | 1.7 | — | — |

* Less than .05 per 100,000.

From a rate of 5.4 per 100,000 in 1911 the decline was fairly
regular to a rate of 2.8 per 100,000 in 1916. We must remember,
however, that suicide mortality is subject to considerable fluctua-
tion with community conditions and that an opinion on the real
trend of this phenomenon must be founded upon facts over a long

TABLE 35.

MORTALITY FROM SUICIDE BY POISON, CLASSIFIED BY COLOR AND BY SEX.
*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911
to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial
Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916 | 4.4 | 6.0 | 3.4 | 2.9 | 3.0 |
| 1916.... | 2.8 | 3.5 | 2.4 | 2.4 | 1.8 |
| 1915.... | 3.8 | 4.9 | 3.4 | .9 | 2.8 |
| 1914.... | 4.8 | 6.8 | 3.4 | 3.7 | 3.7 |
| 1913.... | 5.1 | 7.1 | 3.7 | 4.6 | 3.1 |
| 1912.... | 4.8 | 6.6 | 3.7 | 4.1 | 2.4 |
| 1911.... | 5.4 | 7.7 | 4.1 | 1.9 | 4.1 |

period of time and only after the fluctuations characteristic of suicide are in full view.

### Suicide by Asphyxia.

The experience for this cause of death among white males and females according to age periods is shown in the following table. No substantial facts for colored persons are available.

TABLE 36.

MORTALITY FROM SUICIDE BY ASPHYXIA, CLASSIFIED BY SEX FOR WHITE LIVES AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons in Total Experience. | White. | |
|---|---|---|---|
| | | Males. | Females. |
| All ages—one and over.... | 1.9 | 3.0 | 1.5 |
| 1 to 24........ | .3 | .3 | .2 |
| 25 to 34........ | 2.2 | 3.4 | 2.1 |
| 35 to 44........ | 3.9 | 6.3 | 3.6 |
| 45 to 54........ | 5.3 | 10.4 | 3.6 |
| 55 to 64........ | 6.2 | 13.3 | 2.8 |
| 65 to 74........ | 6.7 | 14.4 | 3.0 |
| 75 and over..... | 3.4 | 5.7 | 2.5 |

The rates represented in the foregoing table were based upon 1,040 deaths from suicide by asphyxia. The rate for males from this cause is, at all ages combined, twice as high as that for white females. There is a constant increase in the rate with age for white males throughout the significant age groups but no very material variation for white females. The general trend of the rate for suicide by asphyxia during the six years under observation is shown in the table on page 54.

There is a practically constant death rate for this cause. Such variations as do occur are of no particular moment. If anything, there seems to be a slight increase in the rate for white females. In the expanding Registration Area of the United States, also, there has been observed in recent years a slight increase in the recorded death rate from suicide by asphyxia, but this may be almost entirely due to an increase in the precision of reporting on the part of coroners, physicians and others entrusted with the completing of death certificates.

TABLE 37.

MORTALITY FROM SUICIDE BY ASPHYXIA, CLASSIFIED BY SEX FOR WHITE
LIVES.

*Death Rates per 100,000 Persons Exposed.  Single Years in Period 1911
to 1916.*

Experience of Metropolitan Life Insurance Company.  Industrial
Department.

| Year. | Persons in Total Experience. | White. | |
|---|---|---|---|
| | | Males. | Females. |
| 1911 to 1916 ............ | 1.9 | 3.0 | 1.5 |
| 1916............ | 1.9 | 2.5 | 1.8 |
| 1915............ | 2.3 | 3.4 | 1.9 |
| 1914............ | 1.9 | 3.1 | 1.2 |
| 1913............ | 2.1 | 3.5 | 1.5 |
| 1912............ | 1.7 | 2.4 | 1.5 |
| 1911............ | 1.7 | 2.8 | 1.1 |

### *Suicide by Hanging or Strangulation.*

Only 761 deaths from this cause were recorded.  This number
does not justify any detailed analysis according to age classes.  It
will be sufficient to remark that the death rate for this cause was
practically the same among white males as the death rate from sui-
cide by asphyxia.  For white females and for colored persons the
data are of no significance.  The total number of deaths registered
was 761; of these 626 were those of white males.

### *Suicide by Drowning.*

There were only 316 deaths from this form of suicide.  White
males showed the highest rate; white females had a death rate about
half that of white males.

### *Suicide by Firearms.*

The use of firearms was next in importance to poison among the
cases of suicide represented in this mortality experience.  We re-
corded in all 1,519 deaths at a rate of 2.8 per 100,000 exposed.
The mortality rate varied quite sharply according to sex, there being
an almost negligible rate among females of both color or race
classes.  Our facts for color, sex and age are given in the following
table:

TABLE 38.

MORTALITY FROM SUICIDE BY FIREARMS, CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over .......... | 2.8 | 5.7 | .6 | 4.2 | .8 |
| 1 to 14..... | † | .1 | — | .1 | .1 |
| 15 to 19..... | 1.3 | 1.9 | .8 | 1.9 | .6 |
| 20 to 24..... | 4.1 | 7.3 | 1.5 | 7.9 | 1.1 |
| 25 to 34..... | 3.9 | 8.1 | 1.0 | 7.2 | 1.3 |
| 35 to 44..... | 4.7 | 11.7 | .9 | 5.6 | 1.0 |
| 45 to 54..... | 6.1 | 16.5 | .7 | 5.2 | .8 |
| 55 to 64..... | 6.6 | 17.8 | .4 | 4.8 | .4 |
| 65 to 74..... | 6.0 | 16.5 | .3 | 3.3 | — |
| 75 and over.. | 7.2 | 21.3 | — | — | — |

† Less than .05 per 100,000.

The chief fact of importance in this table is the practically stationary rate between 45 and 75 years of age. The trend of the mortality from this cause is displayed in the following table:

TABLE 39.

MORTALITY FROM SUICIDE BY FIREARMS, CLASSIFIED BY COLOR AND BY SEX.

*Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916...... | 2.8 | 5.7 | .6 | 4.2 | .8 |
| 1916........ | 2.5 | 4.8 | .6 | 4.2 | .6 |
| 1915........ | 2.8 | 5.5 | .6 | 4.3 | .9 |
| 1914........ | 2.7 | 5.4 | .7 | 3.7 | .8 |
| 1913........ | 3.1 | 6.5 | .6 | 4.2 | .5 |
| 1912........ | 2.9 | 6.1 | .4 | 5.0 | .5 |
| 1911........ | 3.0 | 5.9 | .5 | 4.1 | 1.3 |

The figures at hand relate to so few calendar years that no final conclusion can be drawn on the general trend of suicide by firearms.

We can say at a venture that a slight decrease was observed. The underlying causes of mortality from suicide by firearms are entirely too complex to make it possible for us to speculate in any great detail upon the data shown in the foregoing table.

## HOMICIDE.*

The facts on homicide among this group of insured wage earners form an important contribution to the statistics on the crime of homicide in the United States. In fact, there are not available in discussions of the homicide problem any such detailed, modern data according to age classes of the two main race groups in the population as are to be found in this present display. In this investigation there were recorded 3,753 homicides and these deaths represent a rate of 7.0 per 100,000 persons exposed. The following table gives a statement of the number and percentage of homicide deaths according to the several means of injury employed:

TABLE 40.

MORTALITY FROM HOMICIDE (ALL FORMS).*

*Number of Deaths, and Percentage of Deaths, According to Specified Means of Injury. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Means of Injury. | Number of Deaths. | Percentage of Total. |
| --- | --- | --- |
| HOMICIDES—TOTAL.......... | 3753 | 100.0 |
| Firearms............... | 2435 | 64.9 |
| Cutting or piercing instruments ........ | 616 | 16.4 |
| Other homicides......... | 702 | 18.7 |

Of these homicides, 64.9 per cent. were accomplished through the use of firearms. This proportion is slightly in excess of that for the general population of the expanding Registration Area (61.8). Homicide by means of cutting or piercing instruments

* Under "Homicide" are classified only those cases in which the fact of homicide or of attempt at homicide is clearly shown. By careful "editing" of our data relating to causes of death many cases originally reported under such terms as "gunshot wound," "cut," "poisoning," and others have been classed as homicides instead of being placed under the "accidental or unqualified" group.

was recorded in the present investigation in 16.4 per cent. of all homicides. In the general population of the Registration Area only 14.2 per cent. were accomplished through this means.

The homicide death rate in this insurance experience was nearly 7½ times as great for colored males as for the entire group of insured wage earners. This rate (52.2 per 100,000) was almost ten times that of white males (5.4 per 100,000). Among colored females there was registered a death rate for homicide of 14.1 per 100,000 exposed. This rate is nearly three times that recorded for white males and over seven times the rate for white females. In the following table and in Chart IV, page 58, we give a comparison of the homicide death rates in this insurance experience according to color, sex and age classes:

TABLE 41.

MORTALITY FROM HOMICIDE (ALL FORMS), CLASSIFIED BY COLOR, SEX AND BY AGE PERIOD.

*Death Rates per 100,000 Persons Exposed. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| All ages—one and over ........ | 7.0 | 5.4 | 1.9 | 52.2 | 14.1 |
| 1 to 14..... | .7 | .6 | .6 | 3.1 | 1.1 |
| 15 to 19..... | 5.8 | 4.4 | 2.1 | 40.6 | 14.1 |
| 20 to 24..... | 12.5 | 8.5 | 3.6 | 95.6 | 30.1 |
| 25 to 34..... | 16.0 | 11.8 | 3.3 | 106.0 | 26.6 |
| 35 to 44..... | 11.4 | 10.5 | 2.8 | 66.6 | 13.4 |
| 45 to 54..... | 7.3 | 9.4 | 1.9 | 40.1 | 6.8 |
| 55 to 64..... | 4.6 | 7.3 | 1.3 | 19.2 | 5.7 |
| 65 to 74..... | 2.8 | 4.1 | 1.1 | 13.4 | 2.3 |
| 75 and over . | 3.4 | — | 1.7 | 41.2 | 18.1 |

The age period of maximum incidence for males in both color classes was the same—25 to 34 years. For white and colored females the maximum rate occurred at an earlier period, 20 to 24 years of age. Among colored males this maximum rate was 106 per 100,000 exposed. Homicide among colored males was one of the chief causes of death, ranking next to pneumonia in order of numerical importance at this age period in life. It will be noted,

## Chart IV.—MORTALITY FROM HOMICIDE—ALL FORMS

Death Rates per 100,000 Persons Exposed, Classified by Age Periods.   White and Colored Groups Compared for Each Sex Class

Experience of Metropolitan Life Insurance Company, Industrial Department, 1911 to 1916



Death Rate per 100,000

White Males _____
Colored Males _ _ _ _ _ _

White Females _____
Colored Females _____
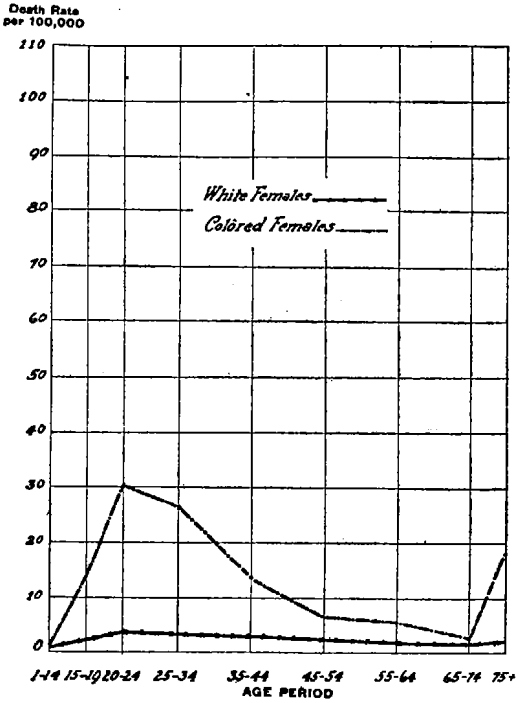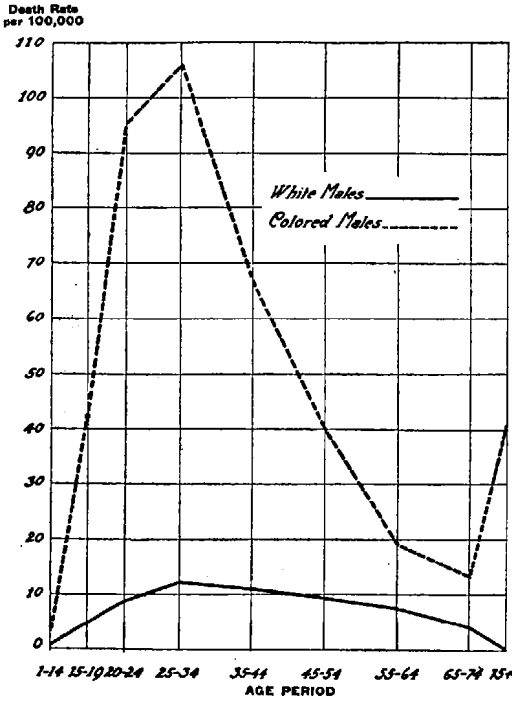
AGE PERIOD

however, that the age period 20 to 24 years had only a slightly lower homicide rate, 95.6 per 100,000 exposed.

Homicide assumes alarming proportions as a cause of death among the colored population of the United States. No convenient or all-inclusive explanation of this phenomenon among colored persons can be made in this present discussion. The homicide problem is entirely too grave and grows out of so many other complex social situations that we cannot, at the present time, do more than to indicate the necessity for a further and qualified inquiry into the problem.

The ratio of the homicide rates for white and colored persons, according to sex, may be pointed out, however, in passing. The following table gives a convenient view of the ratios of white and colored mortality at the several age periods in each sex:

TABLE 42.

MORTALITY FROM HOMICIDE (ALL FORMS).

*Percentage, Colored of White Mortality at Specified Age Periods for Each Sex. 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Age Period. | Percentage, Colored of White Mortality. | |
|---|---|---|
| | Males. | Females. |
| All ages—one and over....... | 966.7 | 742.1 |
| 15 to 19......... | 922.7 | 671.4 |
| 20 to 24.......... | 1124.7 | 836.1 |
| 25 to 34.......... | 898.3 | 806.1 |
| 35 to 44.......... | 634.3 | 478.6 |
| 45 to 54.......... | 426.6 | 357.9 |
| 55 to 64.......... | 263.0 | 438.5 |
| 65 to 74.......... | 326.8 | 209.1 |
| 75 and over ...... | —* | 1064.7 |

* No deaths of white males from homicide in this age period.

It will be seen that for the entire experience the homicide rate for colored males is practically ten times that of white males. At the age period 20 to 24 years the colored male homicide rate is more than eleven times that of the white male rate. There is a tendency toward decrease in this ratio with advancing age. At all ages, 1 and over, in this experience, colored females show a homicide rate nearly 7½ times that of white females. At the age period 20 to 24 years colored female homicide mortality is more than 8⅓ times the

rate for white females.  Between 25 and 34 years, homicide among colored females is still more than eight times as prevalent as among white females.

We may inquire briefly also into the sex ratio of homicide mortality according to age period for each of the color classes.  The facts available are shown in the following table:

TABLE 43.

MORTALITY FROM HOMICIDE (ALL FORMS).

*Percentage, Male of Female Mortality at Specified Age Periods for Each Color Class.  1911 to 1916.*

Experience of Metropolitan Life Insurance Company.  Industrial Department.

| Age Period. | Percentage, Male of Female Mortality. | |
| --- | --- | --- |
| | White. | Colored. |
| All ages—one and over....... | 284.2 | 370.2 |
| 15 to 19.......... | 209.5 | 287.9 |
| 20 to 24.......... | 236.1 | 317.6 |
| 25 to 34.......... | 357.6 | 398.5 |
| 35 to 44.......... | 375.0 | 497.0 |
| 45 to 54.......... | 494.7 | 589.7 |
| 55 to 64.......... | 561.5 | 336.8 |
| 65 to 74.......... | 372.7 | 582.6 |
| 75 and over..  ... | —* | 227.6 |

* No deaths of white males from homicide in this age period.

Males among white persons show a homicide death rate nearly three times that of females.  For the colored race, males have a homicide death rate nearly 3¾ times that of females.  The excess of the homicide rate for males over the rate for females increases with age up to the period 55 to 64 years among white persons and up to the period 45 to 54 years among colored persons.

*Homicide Rate Among Insured Wage Earners and Among Population of the Expanding Registration Area of the United States Compared.*

We offer on page 61 a comparison of the homicide death rates among white persons in the insurance experience and among all persons in the Registration Area experience.

These two groups are in many respects comparable.  It must be remembered, however, that the statistics for the expanding Reg-

istration Area of the United States are affected by a small propor-
tion of colored persons, about 5 per cent. In view, however, of the
extraordinarily high homicide rate among this latter group of the
population, the figures for the total population as to homicide are,
undoubtedly, a little higher than they would be had it been possible
to exclude this statistical group. Thus, in making this present
comparison, we must bear in mind that about 5 per cent. of the
population material is affected by a homicide death rate between
seven and ten times as high as that of white persons. This one
fact may be sufficient in itself to account for the exceptionally
favorable homicide figures among insured white males and females
shown in the following table:

TABLE 44.

MORTALITY FROM HOMICIDE (ALL FORMS).

*Death Rates per 100,000 Persons Exposed. Classified by Sex and by Age
Period. Insured White Lives in Experience of Metropolitan Life In-
surance Company, Industrial Department (1911 to 1916) and
General Population Experience of Expanding Registra-
tion Area of the United States (1910 to 1915).*

| Age Period. | Males. | | | Females. | | |
|---|---|---|---|---|---|---|
| | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. | M. L. I. Co. (White). | U. S. Reg. Area. | Percentage M. L. I. Co. of Reg. Area. |
| All ages—one and over.... | 5.4 | 10.4 | 51.9 | 1.9 | 2.7 | 70.4 |
| 1 to 14 ..... | .6 | .9 | 66.7 | .6 | .7 | 85.7 |
| 15 to 19..... | 4.4 | 6.1 | 72.1 | 2.1 | 3.0 | 70.0 |
| 20 to 24..... | 8.5 | 16.9 | 50.3 | 3.6 | 5.0 | 72.0 |
| 25 to 34..... | 11.8 | 19.3 | 61.1 | 3.3 | 4.7 | 70.2 |
| 35 to 44..... | 10.5 | 16.6 | 63.3 | 2.8 | 3.5 | 80.0 |
| 45 to 54..... | 9.4 | 11.7 | 80.3 | 1.9 | 2.1 | 90.5 |
| 55 to 64..... | 7.3 | 8.1 | 90.1 | 1.3 | 1.5 | 86.7 |
| 65 to 74..... | 4.1 | 5.7 | 71.9 | 1.1 | 1.2 | 91.7 |
| 75 and over.. | — | 3.7 | — | 1.7 | 1.6 | 106.3 |

For all ages one and over the homicide rate for insured white
males was only 52 per cent. of that among all males in the expand-
ing Registration Area of the United States. Among insured white
females the homicide rate was only 70 per cent. of the rate prevail-
ing in the Registration Area group of females. Beginning with the
age period 25 to 34 years, however, there is, with unimportant ex-
ceptions, an increasing tendency toward equality in the homi-

cide rates of the two experiences. At the age period 55 to 64 years, insured white males have a homicide rate only 10 per cent. more favorable than that of males in the population experience.

### Trend of the Death Rate for Homicide.

In the experience for insured wage earners we observe a fluctuating rate from this cause, with no distinct upward or downward tendency for any of the color or sex classes, with the possible exception of colored males for whom there was perhaps a tendency toward increase. The 1916 death rate for homicide, compared with the 1911 rate, showed a slight decrease for white males, a constant rate for white females, an increase of practically eight points per 100,000 for colored males and a decrease for colored females. It will be recalled that the suicide rate during 1916 showed a tendency to reflect the conditions of unprecedented prosperity which prevailed throughout the sections of the country where the Company does business among wage earners. This condition of generally better economic status for the industrial population of the United States apparently did not affect the homicide death rate, however, probably because there is no very close connection between the homicidal impulse and material well-being. The crime of homicide is precipitated, perhaps, in persons afflicted with various types of mental and nervous defects and diseases, by other than economic stresses and circumstances. In the following table we give a statement of the trend of the homicide death rate during the six years of this present investigation:

TABLE 45.

MORTALITY FROM HOMICIDE (ALL FORMS), CLASSIFIED BY COLOR AND BY SEX. *Death Rates per 100,000 Persons Exposed. Single Years in Period 1911 to 1916.*

Experience of Metropolitan Life Insurance Company. Industrial Department.

| Year. | Persons. | White. | | Colored. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| 1911 to 1916...... | 7.0 | 5.4 | 1.9 | 52.2 | 14.1 |
| 1916....... | 6.9 | 5.4 | 2.0 | 54.0 | 14.3 |
| 1915....... | 6.9 | 5.5 | 2.0 | 49.9 | 15.8 |
| 1914....... | 7.0 | 5.5 | 1.9 | 54.0 | 12.6 |
| 1913....... | 7.2 | 4.8 | 2.1 | 57.8 | 13.1 |
| 1912....... | 6.7 | 5.2 | 1.6 | 50.4 | 12.8 |
| 1911....... | 7.2 | 5.9 | 2.0 | 46.2 | 15.9 |

In the experience of the general population of the Registration Area we observe, likewise, a practically stationary death rate from the crime of homicide. It must be remembered, however, that between 1911 and 1915, the period for which population data are available at the present writing, a number of areas containing a large number of colored persons were added to the registration record and that this fact in itself had a tendency to slacken a slight decrease in homicide, if any such really existed.