RECENT TRENDS OF MORTALITY FROM VIOLENCE

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The causes of violent deaths have changed with the growth of civilization. In England the risk of being murdered or hanged is much smaller than three centuries ago when life was held to be cheaper, but in the last 150 years new and potent methods of killing have been introduced. With the development of industrialization new hazards arose from machinery, from railways, and from the internal combustion engine. In the last decades of the 19th century, there was an increasing awareness of the unnecessary waste of life from accidents in industry. The various risks in industry have been greatly reduced, but the more recent campaign against road accidents, although continuous and vigorous, has not met with any great success.

As a result of the measures taken, the death rate from accidents fell dramatically. In males, the death rate from accidents and negligence fell from 1,064 per million in 1861-70 to 496 in 1931-35, and in females it declined from 314 to 198 during this period. The death rate from accidents in coal mines fell from 96 per million in 1863-70 to forty in 1931-38. On the railways the death rate in males of 89 per million in 1871-80 fell to only twenty in 1931-38. In males, deaths from accidental drowning were 214 per million in 1863-70 and 58 in 1931-38, and during this period the death rate in males from accidental burns and scalds fell from 109 to 29 per million. The death rate in males from all forms of suffocation was 73 in 1863-70, increased to 81 in 1891-1900, and then fell steadily to twenty in 1931-38. The death rate from accidents due to horse vehicles was 124 per million in 1863-70, declined to 59 in 1901-10, and fell to five in 1931-38.

The very large fall in fatal accidents due to horse vehicles has been more than compensated for, however, by motor vehicles. The first deaths registered as due to motor cars were one male and one female in 1896 and the first motor-cycle deaths registered were two males in 1902. From these small beginnings

a terrific stream of deaths has resulted; in 1954 the numbers killed by motor vehicles were 3,289 males and 1,158 females, including 1,049 males and seventy females who died from motor-cycle accidents.

Aircraft have begun to be an important cause of violent death. In 1911 six deaths were registered, in 1921 the numbers rose to 64, including 38 in the disaster to airship R38, and in 1954 the number of deaths was 225. The largest annual number of deaths from aircraft accidents was 311 in 1952.

The introduction of gas for domestic purposes provided another means of suicide that has become more frequent during the present century.

Although there was a large fall in the mortality from violence before 1939, the rate of decline has been much slower than that of the death rate from natural causes. As a result of this trend violence has become relatively more important as a cause of death; in 1861-71 deaths from violence formed 3.4 per cent. of all deaths and in 1931-39 the proportion was 4.6 per cent.

During the past 20 years there have been changes in the mortality from violence. The chief is the decline in mortality in males; in females the death rate has fluctuated about a fairly constant level. In 1935 the death rate per million was 743 for males and 345 for females, and in 1954 the rates were 593 and 358 respectively. The actual number of deaths was 14,479 males and 7,301 females in 1935 and 12,630 males and 8,239 females in 1954.

The standardized death rates from violence during the past 90 years are shown in Table I. The death rates from all forms of violence have declined faster for males than for females. In males the rate in recent years is less than half the rate at the beginning of the period, while in females it is about two-thirds of its former level; consequently the death rate in males is now $2\frac{1}{2}$ times that in females compared with $3\frac{1}{2}$ times at the beginning of the period. The course of the standardized death rate for suicide has been

different for the two sexes. In males the rate has fluctuated considerably, but in recent years has been slightly below the most favourable rates of the earlier years. In females, on the other hand, the rate increased from 1861 to 1940, fell during the years 1941-45, and has since risen slightly again to a level above that of the years 1861-1900. A fall in the

suicide rate was recorded for both sexes during the two world wars, 1914-18 and 1940-45.

ACCIDENTS

Table II shows the age distribution of death rates from violence, excluding suicide and war casualties, by age and sex for the years 1941 to 1954. The largest improvement in both sexes has been at ages 5 to 9, where the death rate has fallen to one-third of the level of 1941. The death rates from birth to 4 years and from 10 to 14 years have fallen to less than one-half of their initial level. The improvement for the age groups under 15 was similar for both sexes; at ages 25-74 the rate in males has been halved, while that in females has fallen by approximately one-third. The smallest rate of decline was in old age, 75 and over. Excluding old age, the smallest rate of improvement among males was at ages 15-19 and 20-24, the rates in 1954 being 72 and 82 per cent. respectively of the rates in 1941. In childhood, the rate fell steadily during the period, but at older ages it declined to a minimum in the middle of the period with a tendency to rise in the more recent years. This happened in both sexes, but was more marked in males, especially in the age groups 15 to 40, where the minimum was reached in 1948. At ages 20-24 the death rate fell from 741 per million in 1941 to 344 in 1948, rose to 684 in 1952, and declined to 608 in 1954.

TABLE I

STANDARDIZED RATES PER MILLION FROM VIOLENCE
(EXCLUDING WAR CASUALTIES) IN ENGLAND AND
WALES, 1861-1954

Period	Suicide		Other Violence		All Violence	
	Males	Females	Males	Females	Males	Females
1861-70	105	35	1,064	314	1,169	349
1871-80	115	36	993	304	1,108	340
1881-90	128	39	829	284	957	323
1891-00	144	44	790	313	934	357
1901-10	157	47	670	282	827	329
1911-20	119	43	729	255	848	298
1921-30	138	52	523	201	661	253
1931-40	140	60	519	264	659	324
1941	96	44	702	254	798	298
1942	89	43	585	224	674	267
1943	95	44	530	200	625	244
1944	97	40	520	206	617	246
1945	95	46	506	202	601	248
1946	99	51	431	182	530	233
1947	95	51	447	184	542	235
1948	101	52	370	161	471	213
1949	101	50	383	155	484	205
1950	96	46	389	152	485	198
1951	94	46	423	156	517	202
1952	93	43	416	147	509	190
1953	101	48	402	153	503	201
1954	105	52	394	154	499	206

TABLE II

DEATH RATES PER MILLION FROM VIOLENCE, (EXCLUDING SUICIDE AND WAR CASUALTIES) ENGLAND AND
WALES, 1941-54

Sex	Year	Age Group (yrs)										
		0-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75 and Over
Males	1941	839	523	348	553	741	648	584	696	1,000	1,403	3,168
	1942	790	486	277	450	637	508	459	560	768	1,115	2,747
	1943	720	481	263	417	546	480	418	496	651	946	2,333
	1944	767	494	276	404	538	438	424	454	645	961	2,188
	1945	736	498	297	459	623	393	348	388	556	863	2,204
	1946	688	328	242	389	461	312	310	371	538	810	2,146
	1947	664	381	225	388	476	343	332	414	517	815	2,304
	1948	585	318	176	318	344	285	267	343	484	658	1,903
	1949	547	299	193	383	438	284	294	338	450	650	2,063
	1950	461	252	151	399	531	360	296	350	463	679	2,021
	1951	489	261	182	403	639	406	308	368	483	707	2,272
	1952	472	219	163	455	684	379	318	348	471	706	2,044
	1953	418	217	149	409	641	366	303	360	469	771	2,332
	1954	393	168	158	399	608	339	303	349	484	809	2,772
Females	1941	623	247	105	116	97	82	90	144	283	793	3,253
	1942	564	231	86	88	106	86	86	118	222	617	2,851
	1943	521	180	98	82	79	72	75	102	186	533	2,582
	1944	566	224	89	76	72	72	68	104	210	528	2,513
	1945	561	209	94	78	74	71	69	98	187	537	2,455
	1946	494	149	69	67	54	63	63	90	193	514	2,634
	1947	503	162	63	70	54	57	65	103	195	536	2,593
	1948	434	153	63	60	56	48	57	89	163	440	2,243
	1949	387	128	63	67	65	40	51	85	171	452	2,374
	1950	338	127	46	70	58	45	50	100	166	454	2,582
	1951	350	97	45	78	68	47	59	94	167	481	2,743
	1952	330	101	49	66	75	50	53	95	169	441	2,344
	1953	318	95	59	62	65	50	60	105	183	501	2,636
	1954	264	86	48	70	67	55	60	105	190	586	2,936

The numerically important kinds of accidents for the years 1941-54 are shown in Table III. During the 14 years a substantial decline occurred in all forms of fatal accidents tabulated, except those from suffocation and poisoning, which have increased slightly, and those in females from falls. The death rate from motor vehicle accidents declined to a minimum in 1948 for males and in 1949 for females and then rose. As a result, of this rise the mortality has reverted to the level of 9 years earlier. Deaths from falls also show a decline to a minimum in 1948 and a subsequent rise, but though the rates in males remained considerably below the initial level, in females the rate in 1954 was slightly above its 1941 level. The chance of a fatal accident from burns was the same for males and females in the early 1940s, but has fallen faster for males than for females; the chance of dying from accidental burns in 1954 was twice as large for females as for males. The mor-

tality from accidental drowning has fallen considerably in males but has shown only a slight improvement in females. As a result the ratio has fallen, from 7 to 1 in 1941 to 4 to 1 in 1954.

The death rates from the more important accidental causes are shown in Table IV by age and sex for three quinquennial periods. In males the death rates from accidental drowning have decreased by one-half in each age group under 65; in females the fall has been mainly confined to ages under 10. The age trend of the rates is different in the two sexes. In each of the three quinquennia, the rate in males is high among pre-school children, rises at ages 5-9, falls at ages 10-14, and rises again at ages 15-19. With the exception of ages 75 and over, the chance of a drowning accident is highest at ages 5-9. In females, the death rate was largest at ages under 5 years, fell to a constant level in early middle life, and rose at the older ages.

TABLE III
DEATH RATES PER MILLION FROM ACCIDENTS, BY CAUSE, AND SEX, ENGLAND AND WALES, 1941-1954

Year	Railways		Motor Vehicle		Poisoned by Solid and Liquid Substances		Poisoned by Gases and Vapours		Falls		Fire and Explosion of Combustible Material		Suffocation		Drowning		Others		All Accidents	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1941	26	2	281	74	5	4	12	6	145	136	44	43	24	15	75	11	159	20	771	311
1942	26	2	208	56	5	3	9	6	127	120	41	39	24	13	59	10	139	22	638	271
1943	27	3	165	46	4	2	8	6	118	114	32	32	24	11	60	11	139	22	577	247
1944	28	3	178	55	4	3	10	7	107	111	31	32	27	16	63	10	129	18	577	255
1945	25	3	158	49	5	4	13	9	103	110	27	31	29	15	65	11	113	21	538	253
1946	22	3	153	47	5	4	10	10	88	110	20	27	30	18	44	11	96	15	468	245
1947	23	2	147	47	5	5	11	12	94	110	27	27	34	21	50	10	92	18	483	252
1948	17	3	128	44	6	4	10	9	78	100	13	20	26	17	39	11	85	14	402	222
1949	16	1	141	41	5	4	11	10	81	105	9	16	25	16	40	8	90	21	418	222
1950	14	2	151	46	5	6	10	11	74	113	9	16	23	14	36	9	97	16	421	233
1951	14	1	161	49	6	6	12	13	86	117	15	19	23	14	36	9	98	17	451	245
1952	18	3	149	42	7	6	12	13	79	105	13	19	22	13	34	8	97	17	431	226
1953	16	1	158	45	6	7	15	14	84	123	10	16	19	13	34	8	94	22	436	249
1954	12	1	161	51	7	7	15	17	99	141	10	19	23	13	30	8	92	15	449	272

TABLE IV
DEATH RATES PER MILLION FROM CERTAIN ACCIDENTS, BY AGE AND SEX

Type of Accident	Quinquennium	Age									
		0-		5-		10-		15-		20-	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Drowning	1940-44	92	32	120	14	64	9	69	4	71	
	1945-49	75	24	96	13	53	11	68	7	41	
	1950-54	49	18	63	8	31	6	42	4	29	
Falls	1940-44	38	24	35	13	26	7	46	4	62	
	1945-49	28	16	25	7	22	5	32	5	36	
	1950-54	17	12	12	4	14	2	24	2	32	
Fire	1940-44	155	135	25	53	8	20	12	13	12	
	1945-49	61	70	11	31	5	9	5	4	2	
	1950-54	13	28	6	19	3	7	3	4	5	
Motor Vehicles	1940-44	145	92	246	119	114	41	161	43	241	
	1945-49	112	64	182	90	87	32	145	32	210	
	1950-54	90	52	104	54	64	21	201	38	337	

During the 15 years fatal falls have declined in every age group except in old age (75 and over), where the rates in 1950-54 exceeded those in 1945-49. The rate in males was considerably in excess of that in females in each age group up to age 65. The death rate in females slightly exceeded that in males at ages 65-70 and was considerably above it at ages 75 and over. Since 1949, the place of occurrence has been tabulated, and the percentage distribution of 8,974 fatal falls in males and 13,657 in females during 1950-54 is shown in Table V. The differences between the sexes are partly due to the difference in occupational risk. Fatal falls from one level to another occurred at work in 50.4 per cent. of accidents in males and in only 1.1 per cent. in females.

TABLE V
DEATHS FROM FALLS, BY SEX

Place of Occurrence	Percentage of Fatal Falls	
	Males	Females
Stairs	17.9	18.3
Ladders	5.0	0.3
One Level to Another	29.9	11.3
Same Level	28.7	39.8
Unspecified	18.5	30.4
Total	100	100

The number of fatal falls at home by age and sex is shown in Table VI for the quinquennium 1950-54. There is a considerable difference between the sexes; in each age group females have a larger proportion of fatal accidents at home than males, but the actual number of fatal accidents at home is larger for males in each age group up to age 45. At ages over 65 females have rather more than 2½ times as many fatal falls at home as males. The proportion of fatal falls that occurred at home at ages 65 and over was 81 per cent. for males and 93 per cent. for females.

TABLE VI
DEATHS FROM ACCIDENTAL FALLS, BY AGE AND SEX,
ENGLAND AND WALES, 1950-54

Sex	Age	Males			Females		
		Total Number of Falls	Falls at Home or in Residential Institutions		Total Number of Falls	Falls at Home or in Residential Institutions	
			No.	Per Cent.		No.	Per Cent.
	0-	155	117	75.5	103	82	79.6
	5-	208	41	19.7	54	14	25.9
	15-	1,381	242	17.5	164	98	59.8
	45-	1,568	571	36.4	799	619	77.5
	65 and Over	5,662	4,240	74.9	12,537	10,835	86.4
	Total	8,974	5,211	58.1	13,657	11,648	85.3

The risk of a fatal burn (Table IV) has fallen during the 15 years in each age group in both sexes, the greatest improvement being in childhood. The risk of a fatal burn is much larger among females under 10 years of age and over 65 years than among males, and the fall in the death rate in childhood has been greater among boys than among girls. At ages 0-4 the rate in girls was slightly below that in boys in 1940-44; in 1950-54, however, it was over twice that in boys. At ages 5-9 the rate in girls was higher than in boys; in a ratio rising from 2 to 3 in the 15 years.

In each age group in both sexes the death rate from motor vehicle accidents (Table IV) was lower in 1945-49 than in 1940-44, but rose again in 1950-54 in each male age group over age 15. This rise was most marked in the age groups 15-19, 20-24, and 25-29; in the first two age groups the male rate for 1950-54 was considerably above the rate for 1940-44.

IV

BY AGE AND SEX, ENGLAND AND WALES, 1940-1954

Group (yrs)

25-		35-		45-		55-		65-		75 and Over		Total	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
42	6	37	6	49	10	64	13	77	15	80	14	64	11
21	4	19	6	28	10	41	13	65	15	86	13	46	10
16	3	17	5	24	9	37	11	62	17	93	17	35	9
69	6	69	12	101	30	179	94	383	398	1,608	2,340	139	129
36	4	45	5	58	15	98	57	232	261	1,228	1,887	93	107
31	3	36	5	51	13	79	46	235	245	1,305	2,029	87	120
14	9	9	9	10	16	18	31	48	77	160	254	32	38
5	5	5	4	6	9	12	19	27	48	115	210	16	25
5	2	8	3	9	6	13	13	21	40	109	161	12	18
192	30	154	27	180	41	271	66	411	120	662	188	215	59
121	17	95	20	103	27	146	52	234	97	443	165	142	45
160	19	109	20	110	32	151	51	234	98	484	194	154	46

Deaths of motor cyclists contributed largely to the excess in these age groups. The distribution by type of accident in 1950-54 for ages 15-19 and 20-24 is shown in Table VII. The absence of the numbers exposed to risk in these eight groups makes impossible any inferences about the relative risks of different types of accident. For example, nothing can be inferred about the relative danger of pedal cycles in the two age groups, although the number of pedal cyclists killed at ages 15-19 was twice the number at ages 20-24; the younger age group may contain many more users of pedal cycles than the older, where, perhaps, pedal cycles have been replaced by motor cycles or motor cars.

TABLE VII
DEATHS OF YOUNG ADULT MALES FROM
ROAD ACCIDENTS

Road Users	Males			
	Ages 15-19		Ages 20-24	
	No.	Per Cent.	No.	Per Cent.
Pedestrians	108	9.4	120	5.8
Pedal Cyclists .. .	280	24.5	136	6.6
Riders or Passengers on Motor Cycles .. .	680	53.1	1,516	73.2
All Others	149	13.0	300	14.4
Total	1,145	100.0	2,072	100.0

Lack of adult supervision plays an important part in accidental deaths among pre-school children. The variation in the death rates from different types of accidents during the first years of life are shown in Table VIII for the years 1950-54. Boys had a higher death rate at each age and for every cause than girls, except for burns and scalds. In boys, the death rate from burns and scalds rose to a maximum at age 1 and fell steadily to one-quarter of this level by age 4-5. In girls, it was at a maximum at age 2 and then fell slowly, so that the death rate of girls at age 4-5 was three times that of boys. The death rate from drowning was highest at age 2, its subsequent fall being more rapid for girls than for boys. The death rate from falls was fairly constant during the first

4 years of life and then fell by one-half in the fifth year. In boys, the risk of a fatal motor vehicle accident increased throughout the first five years of life; in girls, it fell slightly at ages 4-5. Of the deaths from suffocation during the first year of life, 50 per cent. were due to inhalation or ingestion of food, and 46 per cent. to suffocation in cot or cradle. Accidental poisoning arises from a wide variety of substances. Swinscow (1953), in a detailed analysis of deaths from accidental poisoning among children aged 1-4 during 1931-49, found that slightly over one-half of the deaths were due to medicaments and about one-quarter to household poisons. About one quarter of the medicaments were liniments of various kinds, and the remainder were mainly preparations which were regarded as harmless to adults even in large doses. Household poisons included rat poison, insecticides, turpentine, etc., but excluded disinfectants, which accounted for about 7 per cent. of the deaths.

SUICIDE

The death rates from suicide by age and sex for recent years are shown in Table IX (opposite). In males, the suicide rate steadily increased throughout life, but, in females, it fell sharply at ages 75 and over to below the rates for ages 45-64 and 65-74. The largest difference between the death rates of the two sexes is seen at ages 75 and over. During the past 14 years changes have occurred in the age and sex distribution of these deaths. The suicide rate has declined for both sexes under the age of 25 years but has increased at ages 45 and over. At ages 15-19 and 20-24 this fall has been less for females than for males. At the beginning of the period, the rate in males in these age groups was 3 to 4 times greater than that in females; in the last years it was 2½ to 3 times greater. At the other extreme of life, the rate has risen faster in females than in males. At ages 65-74, the ratio fell from 3 to 2 during the period. At ages 75 and over, the rate in males was from 5 to 6 times that in females at the beginning of the period and about 3½ times at the end.

TABLE VIII
DEATH RATE PER MILLION FROM ACCIDENTS AMONG CHILDREN UNDER 5 IN ENGLAND AND WALES, BY SEX, 1950-54

Cause	Age (yrs)									
	0-		1-		2-		3-		4-5	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Scalds and Burns ..	28	29	52	47	33	51	27	48	14	42
Drowning	7	7	44	22	73	30	67	19	53	13
Falling, Crushing ..	23	13	26	16	23	17	20	13	13	6
Motor Vehicles .. .	8	4	61	40	117	73	124	76	132	64
Suffocation	858	641	49	35	11	8	4	4	3	1
Poisoning	8	7	43	28	14	10	12	4	4	6

TABLE IX
DEATH RATES PER MILLION FROM SUICIDE, BY AGE AND SEX, ENGLAND AND WALES, 1941-1954

Sex	Year	Age Group (yrs)								
		10-	15-	20-	25-	35-	45-	65-	75 and Over	All Ages
Males	1941	3	37	81	100	130	232	374	414	135
	1942	3	42	77	96	117	211	331	366	125
	1943	2	38	104	95	140	219	348	314	134
	1944	3	34	111	108	126	226	332	395	135
	1945	4	34	82	110	116	226	352	421	136
	1946	5	30	71	93	145	244	391	465	144
	1947	3	36	69	85	114	254	383	480	137
	1948	2	29	76	83	131	269	469	388	145
	1949	1	33	62	81	134	278	422	490	147
	1950	1	35	64	72	124	265	416	421	136
	1951	6	29	61	80	120	249	412	478	134
	1952	1	40	64	81	120	247	390	414	132
	1953	1	33	80	91	127	263	412	482	142
	1954	3	30	69	96	147	278	430	439	149
Females	1941	0	11	20	55	70	126	117	67	62
	1942	1	11	18	48	78	118	114	81	62
	1943	1	7	25	54	86	112	117	66	63
	1944	0	5	24	48	74	107	114	70	58
	1945	1	10	27	55	78	123	122	79	66
	1946	1	15	27	52	87	145	146	92	75
	1947	0	11	28	51	80	146	166	114	76
	1948	0	11	20	50	80	160	173	98	79
	1949	1	15	26	45	77	144	165	138	75
	1950	1	10	23	35	75	139	153	115	70
	1951	0	9	20	38	66	146	167	107	72
	1952	1	11	12	36	66	134	165	98	68
	1953	3	10	22	39	79	145	171	128	76
	1954	0	12	23	52	77	149	198	130	81

Table X shows that the relative frequencies of different methods of suicide has also changed during recent years. The use of analgesic and soporific drugs has increased and was about four times as common at the end of the period as at the beginning.

This method of suicide is the only one in which the number of females exceeded the number of males. The use of coal gas has steadily increased, the death rates having risen by 50 per cent. for both sexes during the 14 years. The use of other poisons has

TABLE X
DEATH RATES PER MILLION FROM SUICIDE, BY METHOD AND SEX, ENGLAND AND WALES, 1941-1954

Sex	Year	Poisoning			Hanging and Strangulation	Drowning	Firearms and Explosives	Cutting and Piercing	Jumping from High Places	Other Methods
		Analgesic and Soporific Substances	Domestic Gas	Other Poisons						
Males	1941	3	42	7	24	17	15	16	4	6
	1942	2	38	6	24	16	14	13	5	6
	1943	2	41	7	27	18	14	15	4	5
	1944	2	46	7	24	19	12	15	4	6
	1945	3	45	7	29	18	11	14	3	5
	1946	3	46	7	32	18	11	15	4	7
	1947	5	47	6	30	15	12	11	4	7
	1948	7	54	6	29	17	10	9	5	7
	1949	7	53	6	31	17	11	11	4	6
	1950	8	49	5	27	16	9	9	4	8
	1951	7	51	5	25	15	9	8	4	7
	1952	11	52	5	25	13	8	7	3	7
	1953	9	60	5	25	12	10	9	3	7
	1954	10	64	4	29	14	9	8	4	7
Females	1941	3	28	7	6	11	1	2	2	3
	1942	3	29	6	5	11	1	2	3	2
	1943	3	29	5	6	13	1	3	2	2
	1944	3	28	5	5	11	1	2	2	2
	1945	4	31	5	6	12	1	2	3	2
	1946	5	36	5	8	12	0	3	3	3
	1947	6	39	5	7	11	1	2	3	2
	1948	10	40	3	6	11	1	2	3	3
	1949	9	38	4	6	10	0	2	3	2
	1950	11	33	4	6	10	0	2	2	2
	1951	10	39	3	6	10	1	1	2	2
	1952	13	34	3	5	8	0	1	2	1
	1953	11	41	3	6	9	0	1	2	1
	1954	14	47	2	6	8	0	1	2	2

fallen by half. The death rate from hanging has risen slightly for males but has remained fairly constant for females. Other methods of suicide—drowning, firearms, cutting and piercing, jumping from high places—were less frequent at the end than at the beginning of the period.

The distribution of the methods used was quite different for the two sexes, although coal gas poisoning was the most frequent means of suicide for both sexes. The distribution of deaths by method of suicide for 1954 is shown in Table XI. Poisoning by coal gas has been numerically the most important method of suicide for the past 20 years. During this period the number of deaths has increased more rapidly for females than for males. The number of deaths in 1950–54, expressed as a percentage of those in 1930–34, was 113 for males and 148 for females.

TABLE XI
DEATHS FROM SUICIDE, BY SEX

Method of Suicide	Males		Females	
	Number	Percentage	Number	Percentage
Analgesics and Soporific Drugs ..	222	7.0	312	16.7
Domestic Gas ..	1,356	42.7	1,072	57.5
Hanging ..	612	19.3	128	6.9
Drowning ..	290	9.1	178	9.5
Cutting and Piercing ..	160	5.0	27	1.4
Firearms ..	197	6.2	6	0.3
All Other Forms ..	341	10.7	142	7.6
All Methods ..	3,178	100.0	1,865	100.0

The rise in the number of deaths since the introduction of gas for domestic use is shown in Table XII. The trend of the deaths during the war years was different for the two sexes. In 1940–44 the number of suicides in males from coal gas poisoning as a percentage of the number in the preceding quinquennium was 68; the same is true for all methods of suicide. The number of suicides in females in 1940–44 was 82 per cent. of the number in 1935–39, but the number of suicides from coal gas poisoning fell only to 87 per cent. The total

TABLE XII
NUMBER OF SUICIDES BY DOMESTIC GAS POISONING IN ENGLAND AND WALES

Quinquennium	Males	Females
1890–94	2	1
1895–99	8	5
1900–04	43	10
1905–09	268	94
1910–14	432	169
1915–19	419	340
1920–24	1,529	864
1925–29	3,185	1,868
1930–34	5,174	2,983
1935–39	5,482	3,644
1940–44	3,715	3,182
1945–49	4,681	4,081
1950–54	5,833	4,427

number of suicides in 1915–19 as a percentage of those in 1910–14 was 75 for males and 97 for females, but the corresponding percentages for coal gas poisoning were 96 for males and 200 for females.

Deaths from analgesics and soporific drugs were mainly due to two groups of substances: barbituric acid and its derivatives, and aspirin and salicylates. The number of deaths from both types of drug has rapidly increased. In the 10 years following 1940 they produced approximately the same number of deaths, but since 1950 sleeping draughts and tablets have become almost three times as frequent as aspirin. The number of deaths registered in England and Wales from these substances during recent years is shown in Table XIII. The rate of increase during the period was larger in males than in females. For barbituric acid the number of deaths in 1950–54 was 8.4 times the number in 1940–44 for males and 6.9 times for females. The corresponding ratio for aspirin and salicylates was 4.0 in males and 2.3 in females.

TABLE XIII
DEATHS FROM DRUGS, BY SEX

Quinquennium	Barbituric Acid and Derivatives		Aspirin and Salicylates	
	Males	Females	Males	Females
1940–44	79	132	64	154
1945–49	218	345	189	328
1950–54	664	907	256	357
Total	961	1,384	509	839

HOMICIDE

The death rate from homicide (Table XIV) has decreased steadily during the past 100 years although the improvement has been slow during the past 15 years. In the earlier years the death rate in males

TABLE XIV
HOMICIDE, DEATH RATES PER MILLION, BY SEX

Period	Males	Females
1863–70	26	15
1871–80	19	12
1881–90	15	10
1891–00	12	9
1901–10	10	9
1911–20	8	8
1921–30	7	6
1931–40	6	6
1941	5	5
1942	7	6
1943	6	5
1944	5	5
1945	8	6
1946	5	5
1947	5	6
1948	6	5
1949	4	5
1950	5	5
1951	5	4
1952	5	4
1953	4	4
1954	5	5

was 50 per cent. greater than that in females. A greater improvement has occurred in males than in females; the chance of being a victim of murder or manslaughter is now about equal for the two sexes.

The worst recent record was that of 1945; the

deaths rose from 68 in 1944 to 121 in 1945 in males, and from 103 to 131 in females. The deaths in males showed an increase in each age group; in females, however, the deaths at ages under 1 year and at ages 15-24 were each 10 less than in 1944 (Figure).

FIGURE.—Homicide. Death rates per million in England and Wales, by age and sex.

TABLE XV
PERCENTAGE DISTRIBUTION OF DEATHS FROM HOMICIDE, BY AGE AND SEX

Sex	Quinquennium	Age (yrs)									No. of Deaths
		Under 1	1–	5–	15–	25–	45–	65–	75–	Total	
Males	1940–44	27.3	10.7	10.7	6.2	20.4	18.5	4.8	1.4	100	421
	1945–49	28.1	7.3	8.2	9.4	20.6	17.6	6.0	2.8	100	466
	1950–54	15.8	6.4	9.0	15.2	31.4	17.4	3.9	1.0	100	488
Females	1940–44	20.3	6.9	7.8	16.8	28.5	12.8	4.6	2.4	100	548
	1945–49	20.9	8.7	7.5	13.0	28.3	13.4	5.5	2.6	100	583
	1950–54	12.2	10.5	9.7	12.6	23.3	21.0	6.6	4.1	100	485

The percentage distribution of deaths by age for the last three quinquennial periods is shown in Table XV. The distributions of deaths in 1940–44 and 1945–49 were very similar. The most striking feature of these years is that almost one-quarter of the deaths were those of infants; in all, 479 babies were killed. The risk of being killed in adult life was differently distributed in the sexes, females being killed at younger ages than males. In 1950–54, the homicide rate underwent considerable changes. A large fall occurred in the death rate under age 1: the actual number of male infants killed fell from 131 in 1945–49 to 77 in 1950–54, and the number of female infants killed fell from 122 to 59. The age distribution of the sexes also changed; in the last quinquennium the females were killed at an older average age than the males. Despite the large fall in the total number of deaths in females, the number of females killed at ages 45–54 rose from 78 in 1945–49 to 102 in 1950–54. The number of deaths in males at ages 15–24 rose from 44 in 1945–49 to 94 in 1950–54; at ages 25–44 they rose from 96 to 153.

REGIONAL DISTRIBUTION

The death rates from motor accidents and from all other accidents in 1950–54 by age and sex are shown in Table XVI (opposite). They are classified by region and by density of population.

(1) MOTOR ACCIDENTS

(a) *Regional Classification.*—In males the largest regional differences were in the age group under 5 years. The lowest death rates in both sexes in this group were in the three regions which include London and the South East, the East, and the South; the highest were in the North, North West, and Wales I. The rates in the former regions were less than half those in the latter. At older ages the position is different. In both sexes the rate for London and the South East remained relatively low until old age. In males, however, mortality after childhood was relatively high in the South and East;

this tendency appears also in the females but the rates are less regular. At ages 15–24 and 25–44 the highest death rate in males was in Wales II; this region, however, had the lowest death rate but one in the age group 45–64.

(b) *Classification by Population Density.*—In males, the death rates at ages 15–64 increased with decreasing population density and the two lowest age groups showed the same tendency. The difference between the mortality in the rural and urban areas was largest at ages 15–24 and 25–44, the rural rate being almost twice that of the lowest urban rate in these age groups. In females also the death rate showed the same tendency to increase with decreasing population density, but with more irregularity up to age 64; after that age the trend was reversed.

(2) ALL OTHER ACCIDENTS

(a) *Regional Classification.*—In both sexes, at ages under 5 years, the lowest death rates were in London and the South East, and the South West, and the highest were in the two regions of Wales. In both sexes also, at ages over 5 years, low rates were found in London and the South East, and in the Midland, and Southern regions. In males, at ages over 5 years, the highest rates were in Wales and the North; in females, they were in the East and West Ridings of Yorkshire and in Wales II.

(b) *Classification by Population Density.*—In males, the death rates increased with decreasing population density up to age 65. In this respect, motor accidents and all other accidents are similar. The resemblance is particularly noteworthy at ages 15–24 and 25–44, where there is a large excess of rural over urban mortality in both cases. In females no regular pattern can be discerned after infancy, and the death rate in rural areas was relatively high up to middle age.

The regional distribution of suicides by age and sex is shown in Table XVII (opposite). The relative positions of the regions vary in each age group. The mortality was consistently high in each age group in

TABLE XVI

REGIONAL DISTRIBUTION OF ACCIDENTS, BY AGE AND SEX, IN ENGLAND AND WALES, 1950-54, DEATH RATES PER MILLION

Type of Accident	Region	Males								Females							
		Under 5	5-	15-	25-	45-	65-	75 and Over	All Ages	Under 5	5-	15-	25-	45-	65-	75 and Over	All Ages
Motor Vehicle	Northern ..	176	102	186	138	134	221	545	158	72	49	31	17	39	87	131	43
	East and West Riding ..	98	86	234	131	136	254	458	152	50	37	29	18	45	95	193	44
	North Western ..	134	97	211	127	133	227	628	154	74	44	24	22	42	107	236	50
	North Midland ..	111	106	267	151	147	242	359	167	65	41	35	17	36	82	190	44
	Midland ..	92	90	267	163	139	332	593	174	62	49	35	27	49	124	201	53
	Eastern ..	58	88	293	167	152	254	407	174	48	37	49	24	47	83	157	48
	London and S.E. ..	46	80	206	108	110	214	562	131	38	31	36	18	40	102	245	47
	Southern ..	64	70	292	183	115	292	398	183	42	38	57	21	32	89	142	45
	South Western ..	76	92	309	147	144	209	254	164	54	33	44	12	44	84	134	43
	Wales I ..	138	91	190	140	131	180	462	155	70	54	45	19	34	93	162	46
	Wales II ..	68	73	357	206	124	243	388	185	57	34	48	16	29	95	80	39
	All Conurbations ..	86	82	185	112	115	229	617	134	51	35	33	19	44	112	259	49
	Urban 1 ..	96	87	185	117	113	263	455	136	62	40	43	16	40	107	190	47
	Urban 2 ..	97	100	205	125	118	243	481	146	65	38	24	16	39	89	166	43
All Others	Urban 3 ..	95	83	246	137	129	209	432	151	56	42	33	17	30	84	159	41
	Rural Areas ..	98	105	357	216	191	276	385	217	58	45	48	27	50	81	136	50
	Northern ..	415	116	285	328	435	589	2,077	385	310	41	22	31	92	415	3,021	205
	East and West Riding ..	343	98	192	195	288	594	2,492	303	279	37	28	29	93	504	3,225	228
	North Western ..	391	131	168	170	268	516	2,058	279	291	42	27	30	90	437	2,687	204
	North Midland ..	340	96	245	234	294	467	1,589	293	249	32	21	25	97	296	2,439	190
	Midland ..	380	108	153	134	225	511	1,927	241	264	34	18	25	83	429	2,700	188
	Eastern ..	344	95	265	192	207	419	1,615	269	266	33	51	41	87	386	2,366	221
	London and S.E. ..	248	80	163	133	203	427	1,682	220	190	27	26	32	87	350	2,130	184
	Southern ..	352	81	184	158	203	384	1,507	236	240	24	24	27	77	328	2,346	205
	South Western ..	335	107	206	207	256	443	1,443	275	187	41	33	26	88	302	1,973	193
	Wales I ..	464	120	262	357	470	680	1,769	407	322	49	27	25	94	420	2,671	193
	Wales II ..	418	131	283	265	354	456	1,612	345	414	30	26	35	110	341	2,280	227
	All Conurbations ..	305	97	150	145	229	498	1,960	240	224	33	23	31	89	410	2,436	186
	Urban 1 ..	315	104	168	153	243	521	1,937	256	229	39	23	26	81	397	2,633	196
	Urban 2 ..	343	101	187	192	262	456	2,045	281	285	31	41	28	96	403	2,574	223
	Urban 3 ..	365	106	187	211	302	516	1,729	298	286	35	25	31	97	411	2,507	218
	Rural Areas ..	419	105	298	274	312	428	1,511	325	278	35	35	31	81	324	2,259	195

Urban 1 = Areas with populations of 100,000 and over.
 Urban 2 = Areas with populations of under 50,000.

Urban 2 = Areas with population of 50,000 and under 100,000.

TABLE XVII

REGIONAL DISTRIBUTION OF SUICIDES, BY AGE AND SEX, ENGLAND AND WALES 1950-54. DEATH RATES PER MILLION

Region	Males						Females					
	15-	25-	45-	65-	75 and Over	15 and Over	15-	25-	45-	65-	75 and Over	15 and Over
Northern ..	41	109	272	399	416	182	13	49	111	111	67	69
East and West Riding ..	48	104	274	386	606	192	14	49	147	185	88	92
North Western ..	44	108	279	449	543	197	18	53	148	200	155	100
North Midland ..	31	100	280	441	423	185	8	58	144	183	92	91
Midland ..	43	97	260	500	513	181	18	62	160	197	154	102
Eastern ..	44	99	263	383	389	180	11	56	150	160	107	93
London and S.E. ..	51	108	251	400	474	183	14	63	145	173	121	97
Southern ..	50	104	232	395	353	164	14	58	141	170	128	94
South Western ..	40	117	253	402	288	177	14	55	137	170	98	91
Wales I ..	31	73	214	326	292	142	18	50	122	81	120	74
Wales II ..	41	108	201	331	328	158	22	35	117	101	40	68
All Conurbations ..	47	109	259	430	542	187	17	62	146	186	130	97
Urban 1 ..	54	106	258	431	479	186	18	63	179	204	132	112
Urban 2 ..	39	104	278	485	523	197	8	51	164	201	133	102
Urban 3 ..	41	99	267	406	429	185	17	55	141	165	109	92
Rural Areas ..	39	98	248	350	292	160	13	44	103	111	68	66

Urban 1 = Areas with population of 100,000 and over
 Urban 2 = Areas with population of under 50,000.

Urban 2 = Areas with population of 50,000 and under 100,000.

the North West region, and was low in both regions of Wales. At ages 75 and over, in both sexes, the lowest regional rate was less than half the highest

regional rate. In both sexes and in each age group (with the exception of females aged 15-24), the suicide rate was lower in rural than in urban areas.

SEASONAL DISTRIBUTION

The seasonal distribution of all violent deaths for the past 15 years is shown in Table XVIII. There is a winter maximum and a summer minimum. The difference between winter and summer was more pronounced in the quinquennium including the war years than in the two following quinquennia. This seasonal analysis gives only a composite picture. An examination of separate causes is a necessary preliminary to any search for explanation.

Suicide.—The suicide rate is highest in summer. Explanations of the fall in the number of suicides during the more gloomy weather require more than statistical data alone. It is interesting to recall that low rates were recorded during the two world wars, but it is the merest speculation to compare psychological and meteorological gloom.

Motor Vehicles.—The maximum is in winter. This is, perhaps, a little surprising, since traffic is much increased in summer, especially at week ends by private cars. There must, it seems, be some connexion here with the more dangerous driving conditions which prevail in the winter months.

Accidental Falls.—There is a high peak in winter. Deaths from falls at home or in residential institutions made up 74 per cent. of all deaths from falls during 1950–54; furthermore, 80 per cent. of deaths from falls during 1950–54 occurred in the age group 65 and over. Thus the weather cannot provide a direct explanation. Nevertheless, more time is spent indoors in winter and it may be that among old people there is an increased risk of death, in

cold weather, from complications following an accident.

Other Accidents.—These also show a summer minimum and winter maximum. The seasonal variation in the last two quinquennia was not as large as that found for motor vehicles and accidental falls.

SUMMARY

During the 15 years 1940–54, changes occurred in the age and sex distribution of violent deaths. Death rates in childhood declined continuously, the rate in 1954 being only one-half that of 15 years earlier. At ages over 15 years the death rate fell to a minimum in the late 1940s; it rose subsequently but the rate at the end of the period was still below that at the beginning.

In males, the smallest improvement in the death rate from accidents was at ages 15–19 and 20–24. The death rate from motor accidents has declined in each age group in both sexes, except among males aged 15–24, where the death rate in 1954 was slightly above that of 15 years earlier. Deaths of motor cyclists and their passengers figure prominently in these age groups.

A large improvement occurred in the death rates from falls during the period, especially in childhood. In males the death rate was much larger than in females until age 54; at ages 65–70 and 75 and over, the chances of a fatal fall was greater for females. More males than females below the age of 45 had a fatal fall at home; after this age the females were in excess. The death rate from burns was larger among females than males, particularly in childhood and old age.

TABLE XVIII
SEASONAL DISTRIBUTION OF DEATHS, ENGLAND AND WALES, 1940–54
(Average number of deaths per day expressed as a percentage of the annual average)

Type of Violence	Quinquennium	Month												Total
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	
All except War Casualties	1940–44	121	112	106	98	92	93	89	88	90	94	101	117	100
	1945–49	108	106	104	100	97	97	102	95	93	93	100	106	100
	1950–54	108	108	101	102	95	95	97	95	93	98	99	110	100
Suicide	1940–44	91	104	112	110	106	117	106	95	93	89	84	93	100
	1945–49	93	93	107	111	107	111	107	93	96	89	98	95	100
	1950–54	97	100	105	113	110	109	99	96	91	95	92	93	100
Motor Vehicle	1940–44	109	96	96	87	80	78	80	88	101	112	127	147	100
	1945–49	95	86	77	89	92	96	103	102	103	113	119	124	100
	1950–54	93	82	83	89	93	94	103	105	104	112	117	125	100
Falls	1940–44	133	129	109	102	90	81	79	83	89	91	99	115	100
	1945–49	122	127	114	97	94	88	88	85	90	87	97	112	100
	1950–54	120	123	106	95	87	88	88	87	93	99	99	117	100
Other Accidents	1940–44	135	115	107	97	94	97	92	87	84	88	94	110	100
	1945–49	115	114	111	99	95	93	105	100	87	87	93	100	100
	1950–54	116	122	106	106	92	92	98	94	87	90	91	107	100

There was considerable variation in the death rate from accidents between different regions and between different areas of population density. The rate decreased with increasing population up to age 64. At ages 15–44, the death rate from motor vehicle accidents in rural areas was twice that in urban areas. In old age the death rate from motor accidents was largest in the cities and the lowest in rural areas.

At ages over 45, the suicide rate declined during the war but has risen since 1945. The rise has been greatest among the older women, where the rate in 1954 was almost double that of earlier years. Analgesics and soporific drugs have become a numerically important method of suicide, the only one in which the number of deaths in females exceeded those in males; the use of these drugs, however, is increasing faster among men than among women. Domestic gas is still somewhat more frequently employed as a means of suicide. The death rate from hanging has remained fairly constant during the period, and the more disfiguring forms of suicide have become less frequent.

In the first 10 years, the ratio of female to male victims of homicide was five to four; in 1950–54 the rate in females declined and the sex ratio became approximately unity. A large decrease in the number of homicides under 1 year of age was recorded in 1950–54; in the same period increases were recorded for females at ages 45–54 and males at ages 15–44.

The trend of violent deaths suggests that the number of fatal accidents among pre-school children could be considerably reduced by better supervision on the part of adults. The very large accident rate at home among the elderly could also be reduced since many of these fatalities were the result of a fall on the same level, such as might be due, for example, to polished floors or uneven floor covering. The rising rate of suicide among women over age 65 could be a reflection of modern social conditions.

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