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STATISTICAL ASPECTS OF MORTALITY IN EARLY ADULT LIFE*

BY

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For the purpose of the present paper early adult life has been taken as the age period 15-44 years. If this period seems unduly prolonged I may point out that it is used extensively in statistical literature, if not explicitly defined as "early adult life." The notion of the upper age limit of youth may tend to be positively correlated with the age of the lecturer, mindful of which I have tried to avoid prejudging the issue by analysing the data in subperiods, usually 15-24, 25-34, and 35-44.

To set the matter in statistical perspective, in Ireland† in 1949 the total number of deaths under 1 year of age was 3,400, or 9% of the total of 38,100 deaths at all ages; 1,200 (or 3% of total deaths) were in childhood (ages 1-14); 3,700 (or 10%) in early adult life as defined—namely, in the age group 15-44; 7,200 (or 19%) at the later adult ages 45-64; and the remaining 22,600 (or 59%) at ages 65 and over. To state, however, that "only" one-tenth of the total deaths occur at the early adult ages would be seriously to misconceive the qualitative character of the problem. We must all die some time, and there must be some lower limit to infantile mortality—perhaps some countries are near the absolute lower limit. But the elimination of all but a few deaths at young adult ages is surely a reasonable objective of preventive and curative medicine. As will presently be seen, the trend in recent years lends encouragement to such a hope.

Expectation of Life

It is a curious, even a paradoxical, fact that for want of the proper statistics we are prone to judge the condition of the public health by death rates alone. Even morbidity statistics are in an early stage of development, and we know practically nothing about the physical or mental health of the great majority of the public. In any group of the population in a period there are three divisions: (a) those who die, (b) those sick, and others unable to pursue a normal life (measured in suitable statistical units), and (c) the rest. The rest, especially at the age group 15-44 years, are the great majority. The fact that discussion on the state of the public health is practically confined, in its statistical aspect, to death rates, tends to produce a somewhat distorted picture in the public mind.

It is therefore essential to try to present the problem in its social perspective. At age 15 in Ireland in 1945-7

the expectation of life of males was 52.2 years. This represents the number of years, on the average, which men would expect to live after the age of 15. Perhaps it would be simpler to say that for those who have lived to age 15 the average age at death would be 67.2 years. The life table also shows that in the thirty-years span from ages 15 to 45 the average number of years lived by males would be 28.6 years. The figure would be 30 years if mortality were *nil*. Mortality in the age group 15-44 accordingly reduces the maximum span by only 1.4 years.‡ The corresponding figure for women is 1.5 years. There is no significant difference between urban and rural areas in this matter, since, for urban areas alone, years lost in the period of life under consideration are 1.5 for both men and women.

International Comparisons

Much of what I have to say is derived from Table I, which shows the death rates per 100,000 in 1899-1902 and 1947-9 in 16 countries for males, females, and total persons from all causes and from tuberculosis, and certain statistics derived therefrom. The main features of the table are illustrated in Diagram I. The rates shown in the table for each sex are generally the simple averages of the rates in the six quinquennial age groups 15-19 to 40-44 inclusive, which means that they are standardized to a population with the same numbers in each of the six age groups.

Column 7 shows that there is a marked variability between the countries in the young adult mortality rate, ranging from 449 for Spain to 163 for the Netherlands. Ireland is fourth highest on the list, and Scotland fifth. The range of variation is far greater for tuberculosis (column 10): from 185 for Portugal to 18 for Denmark, so that the Portuguese rate is no less than ten times the Danish rate. The rate of 128 for Ireland, exceeded by the rates for only three of the countries shown, is more than twice that for England and Wales and is seven times the Danish rate. Excluding tuberculosis (column 13), the range of variation, while less than that of the death rate from all causes (column 7), is still substantial. The exclusion of tuberculosis has the effect of bringing the Irish rate nearly level with the Scottish rate, and almost eliminates the difference between England and Wales, the Scandinavian countries, and the Netherlands.

Perhaps the outstanding feature of the table is shown by column 16. In all countries the decline in the death rate during the past half-century has been substantial,

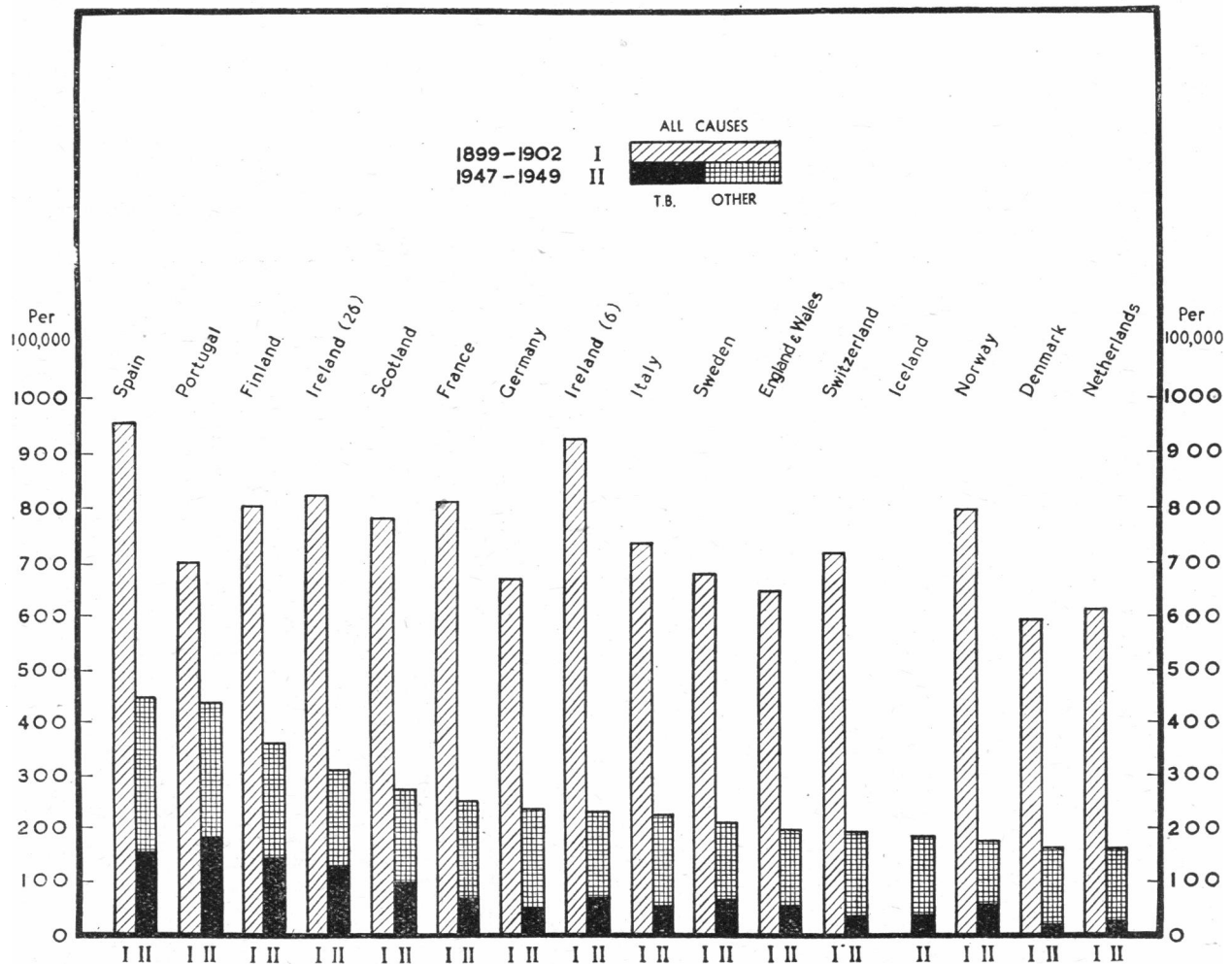
*Paper read at the Joint Annual Meeting of the British Medical Association and the Irish Medical Association, Dublin, 1952.

†Throughout the paper "Ireland" connotes the 26 counties.

‡It is now probably less than one.

DIAGRAM I.

STANDARDIZED ANNUAL DEATH RATES 15-44, 1899-1902, AND 1947-1949



ranging from 40% for Portugal to 78% for Norway, which means that in Norway the rate is now little more than one-fifth of what it was at the beginning of the century. Actually the general decline was well under way during the last part of the nineteenth century, for, as will be seen from Table III, in England and Wales the rate declined from 982 to 612 between the decades 1871-80 to 1901-10, and is now but one-third of its level at the start of the present century.

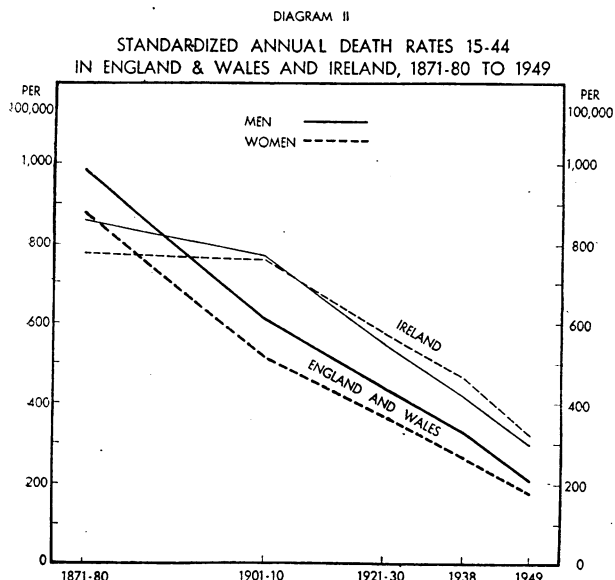
The trends for England and Wales and Ireland since the decade 1871-80 are shown in Diagram II (derived from Table III). The closeness to linearity of the downward gradient, over the whole period for England and Wales and since 1901-10 for Ireland, is remarkable. The reason for the change in gradient in Ireland at 1901-10 is not clearly evident: registration may have been incomplete in the decade 1871-80, which was not long after the year when registration started in Ireland—namely, 1864. If present trends continue there will be practically no young adult deaths in England and Wales by 1975 or in Ireland by 1980.

Column 17 shows that Ireland and Scotland are the only countries in which the female death rate exceeds the male. In Ireland the unfavourable expectation of life for females as compared with males has been commented upon in Census reports, though a significant

improvement in this respect was recorded by the 1945-7 Life Table. As regards young adults, Ireland's higher death rates for women are a comparatively recent development, for up to 1910 or so Ireland conformed to the general pattern. We do not know the reason. It may be associated with the low marriage rate, though the Irish marriage rate has been low for nearly a century. Or it may be that emigration is selective, at any rate as regards healthy women. Ireland has not only an abnormally high emigration rate but it is also exceptional in the proportion of women in the emigration stream. Portugal, Finland, and Ireland have the highest figures for tuberculosis as percentage of total deaths at young adult ages (column 20). In these countries tuberculosis accounts for nearly half the total deaths at these ages. Comparison of columns 18 and 19 shows that in most countries the percentage is higher for women than for men.

General Inferences

This completes the purely descriptive features of Table I. To draw general inferences it will be necessary to use statistical techniques. A glance at the Table will show that the Scandinavian countries, England and Wales, and the Netherlands, with relatively high standards of living, have generally the lowest mortality rates in general and tuberculosis mortality rates in particular. In these countries also the percentage decline in the death rates is greater than the general



average. Furthermore, in these countries the percentage borne by tuberculosis mortality in the general death rate is lower than the average. It is a remarkable and perhaps rather unexpected fact that the tuberculosis death rate in the years 1947-9 is highly correlated with the death rate from other causes. In fact $r = +0.81$. The odds against so high a value occurring in chance association of 16 pairs of numbers is less than 1/1,000. Does tuberculosis render the whole population less viable, apart from those who die from this disease? If so, will a successful campaign against tuberculosis have beneficial effects on health extending far beyond its specific limits and objectives? Or is the correlation due to a common factor affecting the tuberculosis rate as well as the other cause rate? If so, the most obvious common factor is the standard of living; even when this is eliminated the correlation remains high, at $+0.63$, which, with 9 d.f., may be regarded as significant ($0.02 < P < 0.05$).

As regards the relationship between the rate of decline and the level of mortality at the beginning of the century the correlation of the 15 countries for which comparison can be made is lower than one would have expected from a casual glance at the Table. In fact, r is only -0.22 , which cannot be regarded as significant. Inspection shows that two countries are quite exceptional: Portugal with a rate of 703 in 1902 (as compared with 958 for Spain), while the rate of decline is relatively very low—namely, 40%. On the contrary, the rate for Northern Ireland was exceptionally high in 1901 and the rate of decline also high, at 75%. Eliminating these two countries, $r = -0.62$, which would be regarded as significant ($0.02 < P < 0.05$, 13 pairs) of inverse relationship between the two phenomena if it were not achieved by the more than dubious statistical expedient of eliminating cases unfavourable to the thesis. Apart from statistical techniques, however, it remains generally true that in the most advanced countries the percentage declines have been greatest, for reasons which are fairly obvious.

It is unnecessary to point out that this is most remarkable. In other classes of statistics one usually finds a tendency towards uniformity—that is to say, that statistics which were at variance in the past tend towards equality in the present. It is just the opposite with the young adult death rate. Fifty years ago (column 6) the range of variation was only from 958 (Spain) to 592 (Denmark), a ratio of less than 2:1, whereas the range is now nearly 3:1. Tuberculosis is no longer a problem in Denmark and the Netherlands. Perhaps the most important conclusion to be drawn is that in all Western countries the reduction of the death rate at young adult ages to a small fraction of even the present low rates in the most advanced countries may be attained in a short term of years.

Standard of Living and Mortality Rates

It has been established that there is a close relationship between socio-economic class and mortality rate. This is particularly notable in the case of tuberculosis, but it is also true of the general mortality rate. It might accordingly be expected that, comparing country with country, a significant negative correlation would be found between the

TABLE I.—Death Rates per 100,000 Population per Annum in Certain Countries at Ages 15-44 in the Years 1899-1902 and 1947-9, and Derived Statistics. (Rates are standardized; generally they are simple averages of the rates in six quinquennial age groups).

Country	Death Rates per 100,000 per annum												Percentage Decline (in all Causes) 1899-1902 to 1947-9			Males as % of Females 1947-9	Tuberculosis as % of Total 1947-9		
	All Causes						Tuberculosis (All Forms) 1947-9			All Causes Excluding Tuberculosis 1947-9									
	Males		Females		Persons														
	1899-1902	1947-9	1899-1902	1947-9	1899-1902	1947-9	M	F	P.	M	F	P.	M	F	P.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
England and Wales (1901 and 1949)	702	210	588	178	645	194	51	54	52	159	124	142	70	70	70	118	24	30	27
Scotland (1900-1 and 1949)	820	271	753	274	786	273	82	115	99	189	159	174	67	64	65	99	30	42	36
Ireland (6 counties) (1901 and 1949)	870	244	985	216	927	230	67	69	68	177	147	162	72	78	75	113	27	32	30
Ireland(26 counties) (1901 and 1949)	838	297	805	318	822	307	119	137	128	178	181	179	65	60	63	93	40	43	42
Germany (1900-1 and 1949)	710	281	635	189	672	235	59	37	48	222	152	187	60	70	65	149	21	20	20
Denmark (1901 and 1949)	617	184	567	145	592	164	18	18	18	166	127	146	70	74	72	127	10	12	11
Spain (1900-1 and 1948)	987	528	930	370	958	449	183	129	156	345	241	293	47	60	53	143	35	35	35
Finland (1900-1 and 1949)	820	450	785	270	802	360	167	122	144	283	148	216	45	66	55	167	37	45	40
France (1901 and 1949)	863	294	758	213	810	254	74	55	65	220	158	189	66	72	69	138	25	26	26
Italy (1900-1 and 1949)	705	235	770	192	738	213	57	47	52	178	145	161	67	75	71	122	24	24	24
Norway (1900 and 1948)	867	213	727	141	796	177	65	49	57	148	92	120	75	81	78	151	31	35	32
Sweden (1900-1 and 1947)	697	226	657	191	677	208	60	64	62	166	127	146	68	71	69	118	27	34	30
Netherlands (1899-1900 and 1949)	617	200	605	126	611	163	22	20	21	178	106	142	68	79	73	159	11	16	13
Portugal (1902 and 1949)	753	494	633	347	703	420	224	147	185	270	200	235	34	45	40	142	45	42	44
Switzerland (1900-1 and 1949)	738	229	693	158	716	193	35	31	33	194	127	160	69	77	73	145	15	20	17
Iceland (1949)	..	236	..	129	..	183	39	32	36	197	97	147	183	17	25	20

Principal source of basic statistics from which this table was compiled: *W.H.O. Epidemiological and Vital Statistics Report*, Vol. III, Nos. 2-3.

national standard of living and mortality at young adult ages. Unfortunately the assessment of comparative average standards of living in different countries is beset with difficulties, statistical and other. Statisticians have produced statistics of national income and expenditure in the national currencies, and these statistics have much the same scope. The difficulty arises in establishing comparative costs for given quantities of given qualities of goods consumed and services utilized. It is definitely not good enough simply to convert to a common basis (say to £ sterling) national income in national currencies using rates of exchange, though this has been done by people who should know better, myself amongst the number for the present paper. Average national standards of living have also the well-known defects of averages when they cover too wide a range. If very great wealth were concentrated in the hands of a very few people, the generality of the population being poor, the average national income would tend to be misleading in its present application. This is not markedly the case, however, with the countries shown in Table I.

Before the war the rates of exchange were probably a much better indication of relative purchasing power of money than they are to-day. For this reason it has been thought advisable to compare the national standards of living in the different countries in 1938 instead of in 1948-9. It has been possible to derive national income per head, expressing £ sterling for 1938, for 12 of the 16 countries listed in Table I. The coefficient of correlation between the average standard of living in 1938 (as defined) and the general mortality rate for young adults in 1948-9 was found to be $r = -0.66$ and the correlation between the standard of living and the tuberculosis mortality rate was $r = -0.62$. Both of these are significant, for $0.02 < P < 0.05$ for 12 pairs.

Given the statistical imperfection of the measure of relative standard of living, one is probably entitled to assume that if a more exact and comprehensive measure were available the correlation would be even more decisive of the conclusion that, as between European countries, the higher the standard of living the lower the general death rate and the tuberculosis death rate amongst young adults. The best statistical techniques are no substitute for common sense and common knowledge; but here, surely, the statistical conclusion is just what one would expect. The higher the standard of living, whether between countries, within countries, or in a given country over time, the better the general welfare and all that pertains to it, including more and better food, better education, more and better hospital and medical services generally, better housing, better standards of sanitation—all of which must result in better health. The relationship, however, does not apply to each country separately: the death rates for Italy especially are far lower than the Italian national income would lead one to suppose: probably the Italian climate has much to do with this statistical aberration. In Ireland the general death rates at ages 15-44 are about 13% higher than they should be on the basis of national income alone; in England and Wales the excess is about 8%. Without overworking a theory, and not for a moment suggesting that other causes are not at work, the relative standards of living in the two countries can be regarded as "explaining" the greater part of the difference between them. As regards tuberculosis, however, the rates in both countries are much higher than they should be on this basis, in Ireland by about 50% and in England and Wales by about 40%.

The fact of the inverse relationship between death rates and average standard of living, as well as the probability that during the past 50 years the decline in the general young adult mortality rate is most marked in the more advanced countries, raises a question of crucial importance—namely, what proportion of the national resources should be directly devoted to the improvement of the general health of the community and a lowering of the death rate, and what proportion should be devoted to income-producing capital formation which is a prerequisite to improvement in the standard of living, having regard to the fact that such improvement in economic status will be conducive to a

lowering of the death rate? Most countries are poor countries, which means that the total of resources available to the community for capital formation for health and other purposes is limited. The question posed is not a rhetorical one. Statistics cannot furnish an answer, because, even if the public authority has the power to deflect capital resources, decision on how much should be expended in the great divisions of income-producing capital formation on the one hand and into forms of capital which are not directly income-producing involves the balancing of economic and social values in a particularly acute, almost poignant, form when human life is involved. Economic values are usually measurable by statistics; non-economic social values are usually not so measurable. Every death of a young person is a tragedy, and most people closely affected by such a death would willingly have sacrificed all their income and their capital if the life could have been saved.

Causes of Death

For 10 groups of causes of death, the mortality rates per 100,000 population are displayed in very summary fashion for the different divisions of these islands in Tables II and IV and in Diagram III. Causes 1-9 are more or less specific and the drag-net heading 10 includes 19-26% of the numerically less important causes, in regard to which I must be content to refer you to the Reports of the Registrars-General.

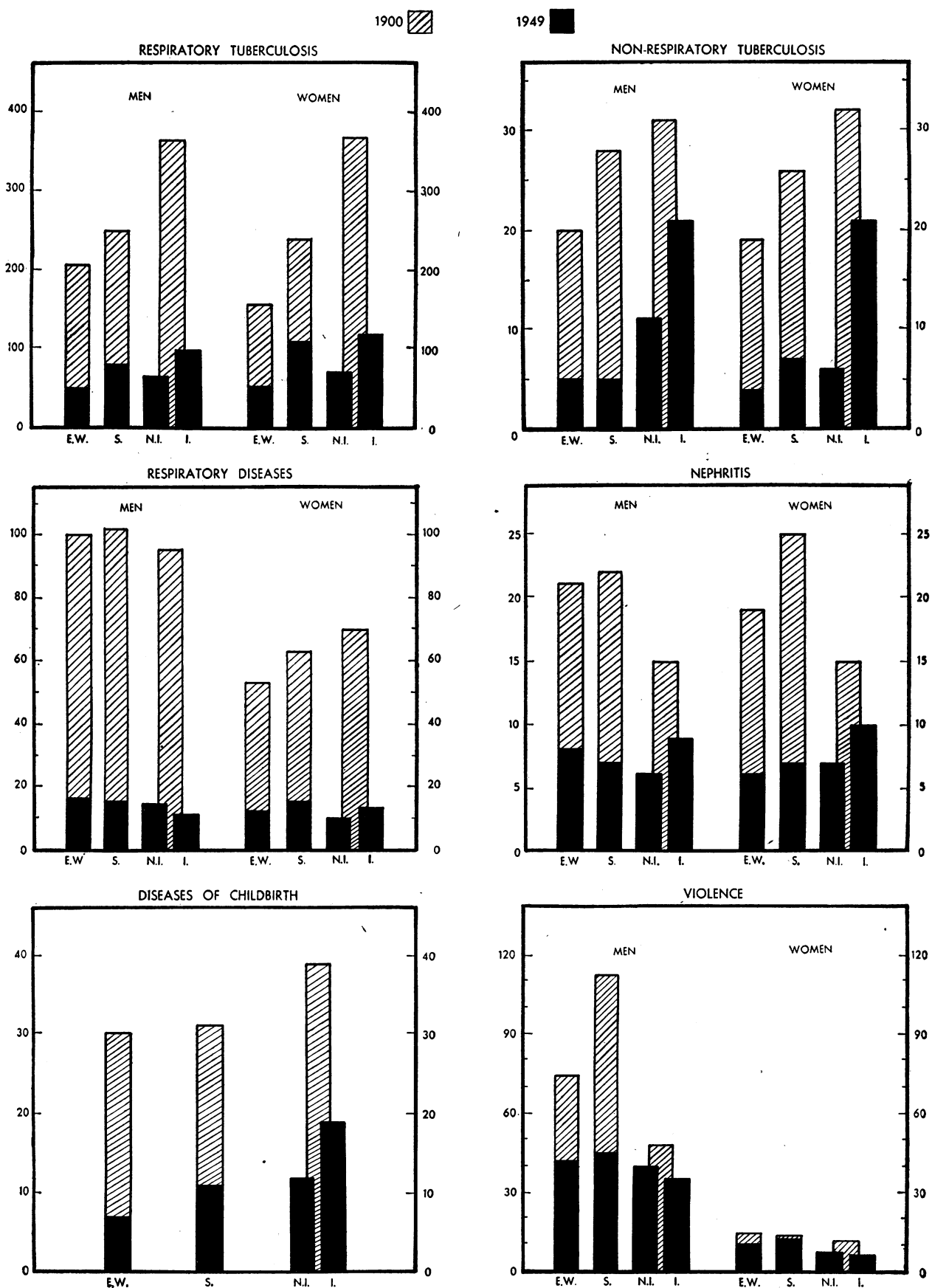
TABLE II.—Crude Death Rates (per 100,000 population) in 1900, 1938, and 1949 in England and Wales, Scotland, Northern Ireland, and Ireland, Classified by Cause of Death

Causes of Death and Year	Males				Females			
	E. & W.	Scotland	N. Ireland	Ireland	E. & W.	Scotland	N. Ireland	Ireland
1. Tuberculosis (respiratory system):								
1900	205	249	362	156	239	365		
1938	72	74	105	67	75	107	151	
1949	48	77	62	50	107	68	117	
2. Tuberculosis (all other forms):								
1900	20	28	31	19	26	32		
1938	9	13	11	27	13	6	31	
1949	5	5	11	21	7	21	21	
3. Malignant neoplasms:								
1900	15	14	11	30	26	21		
1938	21	21	21	15	30	24	25	
1949	25	27	23	19	30	33	27	
4. Diseases of the heart*								
1900	22	49	14	23	59	16		
1938	30	33	42	32	36	45	40	
1949	26	32	28	33	21	31	33	
5. Diseases of respiratory system:								
1900	100	102	95	53	63	70		
1938	34	45	36	37	18	25	31	
1949	16	15	14	11	12	10	13	
6. Nephritis:								
1900	21	22	15	19	25	15		
1938	10	12	13	12	10	12	15	
1949	8	7	6	9	6	7	10	
7. Diseases of child-birth:								
1900				30	31	39		
1938				19	36	46	37	
1949				7	11	12	19	
8. Suicide:								
1900	13	8	4	5	2	2		
1938	12	9	7	5	6	2		
1949	9	5	5	3	3	2	1	
9. Other violence:								
1900	61	104	44	9	11	9		
1938	48	57	31	26	9	6	7	
1949	33	40	35	32	9	5	5	
10. All other causes:								
1900	240	210	263	231	231	279		
1938	82	94	103	68	86	101	103	
1949	49	57	63	61	52	49	59	
11. All causes:								
1900	697	786	839	575	713	848		
1938	318	358	377	268	324	389	442	
1949	219	265	247	181	273	221	305	

* In 1900 the figures shown for diseases of the heart include endocarditis, valvular disease, pericarditis, hypertrophy of heart, angina pectoris. It is not possible to obtain figures comparable with those for 1938 and 1949, as diseases of the heart and of the circulatory system are grouped under the heading "diseases of the circulatory system," and it is not possible to separate the residual group "other and undefined diseases of heart or circulatory system" into heart diseases and diseases of the circulatory system. Compared with 1938 and 1949 the figures for heart diseases are understated.

DIAGRAM III

DEATH RATES BY CAUSES PER 100,000, 1900 AND 1949



Attention is directed to the footnote to Table II. Since 1900 the list of causes of death has been revised on a number of occasions, always in the direction of greater precision, concomitant with the development of medical science. Certification of cause of death is now much more accurate than it was 50 years ago. Comparisons of present-day rates, even when very broadly classified, as in the appended tables, with those of 1900, are accordingly somewhat hazardous, a qualification which attaches especially to diseases of the heart, for reasons stated in the footnote.

In Table II the death rates are crude—that is, they represent the quotient ($\times 100,000$) of the total deaths by population in the age group 15–44. They are accordingly not to be confused with the death rates in Table I, which, in effect, are standardized to populations of equal numbers in the six quinquennial age groups in the total span of years. The incidence of tuberculosis (all forms) has been briefly discussed in connexion with the analysis of Table I. In other tables the particulars for the respiratory and non-respiratory forms of the disease are shown separately.

Of the nine specific causes of disease shown, declines are recorded generally in all four regions except in the case of cancer and heart disease. The death rates in 1949 for women from *respiratory tuberculosis* are in all cases greater than for men. The death rates for Ireland are higher than for the other three areas for both men and women; actually the rates are twice as high as for England and Wales. In 1949 the rates were only about a quarter of what they were at the beginning of the century for men and about one-third for women: it will be noted that the declines were greater for men than for women. Not only has the mortality from the disease greatly declined but deaths from respiratory tuberculosis as a proportion of deaths from all causes have declined uniformly in the case of men. It is satisfactory to note that between 1949 and 1951 deaths from respiratory tuberculosis in Ireland at all ages have fallen by 22%.

Ireland makes an unsatisfactory showing as regards *non-respiratory tuberculosis*. The decline since 1900 has been far less than is the case with respiratory tuberculosis and the rate is four to five times that for Great Britain. In Denmark (with a larger population than Ireland) the actual number of deaths in 1949 from this disease at ages 15–44 was 28: in Ireland it was 260.

In all four regions *cancer* is on the increase, and the rates for women are higher than for men. It is rather remarkable, however, that in England and Wales the rate for women

has been more or less stable since the beginning of the century. It will not be necessary here to discuss the reality of the increase (that is, whether or not it is due to more accurate certification) except to remark that in the age group under review in Ireland the rates are more reliable than at later ages because, in rural areas, the number of uncertified deaths, with consequent inaccuracy of statement of cause of death, is still quite large. Most of the deaths from cancer in the age groups reviewed are at ages 35–44.

As regards *heart disease* Ireland shows a marked tendency to increase. The Irish rates were in fact much below those of Great Britain at the beginning of the century, whereas they are now rather higher. As the footnote to Table II indicates, the rates for 1900 are understated to an unknown degree as compared with those for later years shown.

In all regions the most spectacular declines have been recorded in mortality from *diseases of the respiratory system*, though here again the declines are greater for men than for women. The rates are now but a small fraction of their level in 1900, and the Irish rates compare favourably with those for the other regions.

As regards *nephritis* the rates generally are less than half what they were at the beginning of the century. The Irish rates, lower than the British rates in 1900, are now somewhat higher.

While rates for *diseases of childbirth* are now much below their levels of 50 years ago—the decline since pre-war being notable—the Irish rate in 1949 was much higher than the rates for Great Britain.

While the rates for *suicide* in Ireland are based on only a few deaths, there is no doubt that they are significantly lower than the British rates. The rates for men are uniformly higher than those for women. Despite what we hear of the stress and strain of modern life, the recent decline in Great Britain is the more remarkable and may well be related to the extension of social security. The England and Wales male rate of 9 per 100,000 population in the age group 15–44 compares favourably with Denmark 35, Finland 33, Switzerland 29, Germany 22, and Sweden 20. These latter rates are a melancholy reflection on our modern civilization. Denmark's actual number of male suicides in 1949 at ages 15–44 was 319, as compared with Ireland's 22.

The death rate from *other violence* is very much greater for men than for women. It may come as a surprise that.

TABLE III.—Age-specific Death Rates, England and Wales and Ireland, 1871–80 to 1949

Area and Period	Males					Females				
	15–19	20–24	25–34	35–44	Total* 15–44	15–19	20–24	25–34	35–44	Total* 15–44
Deaths per 100,000 population										
England and Wales:										
1871–80	525	736	934	1,380	982	545	681	861	1,160	878
1901–10	309	418	557	915	612	289	350	474	753	516
1921–30	262	341	386	634	440	248	302	345	485	368
1938	201	273	287	453	326	171	225	251	356	268
1947	162	205	212	344	246	121	182	194	274	206
1948	130	154	187	315	215	112	156	177	245	185
1949	127	159	175	312	210	96	143	165	248	178
Ireland:										
1871–80	508	732	888	1,076	861	519	608	806	965	778
1901–10	412	632	844	948	771	507	598	780	938	757
1921–30	321	492	533	708	549	371	484	561	745	578
1938	255	291	415	567	418	290	342	474	590	460
1947	207	295	367	556	391	252	370	379	489	393
1948	182	267	326	444	332	213	301	361	429	349
1949	155	232	266	431	297	140	250	331	428	318
Percentage										
England and Wales, 1949 as percentage of:										
1871–80	24	22	19	23	21	18	21	19	21	20
1901–10	41	38	31	34	34	33	41	35	33	34
1938	63	58	61	69	64	56	64	66	70	66
Ireland, 1949 as percentage of:										
1871–80	31	32	30	40	34	27	41	41	44	41
1901–10	38	37	32	45	39	28	42	42	46	42
1938	61	80	64	76	71	48	73	70	73	69

* Standardized on basis of equal populations in each quinquennial age group.

despite the increase of deaths on the road, the rates for men for Great Britain were much lower in 1949 than in 1900 and even than in 1938.

As regards *all other causes* the great declines since the beginning of the century are a reminder of the virtual disappearance of infective and parasitic diseases (except tuberculosis), especially of typhoid fever, and the great decrease in diseases of the nervous system.

Ages at Death

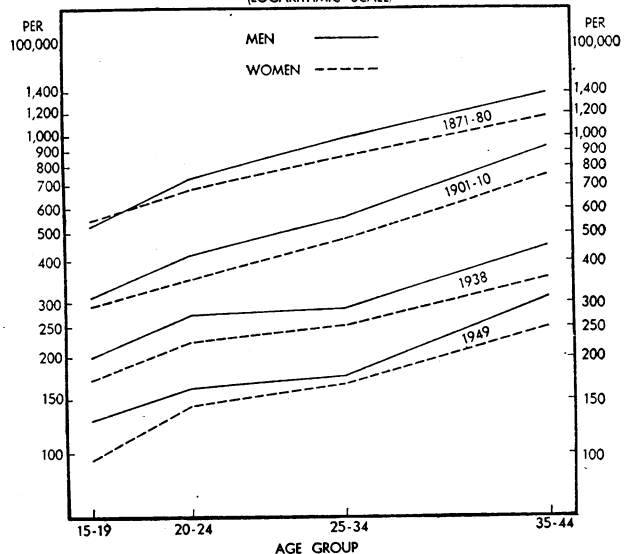
Because of limitations of space I shall have to be content to do little more than let the relevant Tables III and IV and Diagram IV speak for themselves. Table III shows that in the short space of two years from 1947 to 1949 spectacular declines in death rates have been recorded in all age groups in England and Wales and in Ireland; during this period the declines were greater in Ireland than in England and Wales. That the end is not yet is indicated by the fact, already recorded, that between 1949 and 1951 the number of deaths from tuberculosis in Ireland at all ages, but specially affecting the young adult mortality, has fallen from 2,712 to 2,107, or by 22%. The position, in fact, is changing so rapidly that it is difficult to pinpoint it at any year. The death rates in 1949 in each age group and for each sex were substantially higher in Ireland than in England and Wales: the Irish rates in 1949 were generally at about the English level in 1938.

Low as were the English rates in 1938, the figures at the foot of Table III show that, as regards men, the percentage declines since 1938 are generally greater in England and

TABLE IV.—*Death Rates (per 100,000 population) in 1949 in England and Wales, Scotland, Northern Ireland, and Ireland for Each Cause of Death, Classified by Age*

Cause of Death and Country	Males			Females		
	15-24	25-34	35-44	15-24	25-34	35-44
1. Tuberculosis (respiratory system):						
England and Wales ..	29	51	60	53	62	35
Scotland ..	55	83	94	129	143	53
Northern Ireland ..	37	54	89	60	77	57
Ireland ..	69	116	111	99	151	102
2. Tuberculosis (all other forms):						
England and Wales ..	7	4	4	6	4	3
Scotland ..	6	5	3	14	4	3
Northern Ireland ..	8	10	14	5	5	8
Ireland ..	27	19	14	29	20	11
3. Malignant neoplasms:						
England and Wales ..	7	14	50	4	16	65
Scotland ..	6	16	62	4	20	76
Northern Ireland ..	3	12	57	4	14	79
Ireland ..	4	9	52	2	17	73
4. Diseases of the heart:						
England and Wales ..	9	15	48	8	16	36
Scotland ..	13	20	67	10	30	47
Northern Ireland ..	13	9	65	17	30	43
Ireland ..	10	23	74	12	30	63
5. Diseases of respiratory system:						
England and Wales ..	8	10	26	6	9	19
Scotland ..	7	10	28	7	14	24
Northern Ireland ..	2	11	31	6	7	16
Ireland ..	7	10	19	6	12	24
6. Nephritis:						
England and Wales ..	5	7	10	4	5	9
Scotland ..	3	7	12	5	4	12
Northern Ireland ..	4	6	9	6	6	9
Ireland ..	6	8	13	7	9	16
7. Diseases of childbirth:						
England and Wales ..				4	10	7
Scotland ..				6	16	11
Northern Ireland ..				3	13	22
Ireland ..				2	28	29
8. Suicide:						
England and Wales ..	5	8	13	2	5	8
Scotland ..	3	5	8	1	5	5
Northern Ireland ..	2	3	10	4	—	3
Ireland ..	1	3	7	1	1	3
9. Other violence:						
England and Wales ..	41	29	30	7	4	5
Scotland ..	41	39	41	10	7	9
Northern Ireland ..	30	39	25	4	6	3
Ireland ..	30	29	37	5	5	5
10. All other causes:						
England and Wales ..	33	37	71	27	33	62
Scotland ..	30	45	100	27	44	84
Northern Ireland ..	37	48	101	30	44	69
Ireland ..	39	49	106	29	58	101
11. All causes:						
England and Wales ..	144	175	312	121	165	248
Scotland ..	164	230	415	213	287	324
Northern Ireland ..	136	191	400	139	201	310
Ireland ..	193	266	431	193	331	428

DIAGRAM IV
ANNUAL AVERAGE DEATH RATES PER 100,000
IN AGE GROUPS IN ENGLAND & WALES, 1871-80 TO 1949
(LOGARITHMIC SCALE)



Wales than in Ireland. There is, however, some indication that, within the general age group 15-44, the declines in Ireland in more recent periods are greater in the lower age groups than in the higher. This is what one would expect, but, remarkably, it does not appear to be the case in England and Wales except in a certain degree since 1938. Since 1921 there is but one exception in England and Wales to the rule that the female death rate is lower than the male; while there are some exceptions, the general picture is the reverse in Ireland. Over the whole period since 1871-80, the decline by 1949 in rates in England and Wales to about one-fifth of their level in the decade 1871-80 is quite uniform between the age groups. This is also evident from Diagram IV.

Table IV shows that, apart from the general increase in the death rates with age (see also Diagram IV), there are marked divergences in the rates for main causes of death. Thus while the pulmonary tuberculosis rate was highest in 1949 for women in all four areas at ages 25-34, in Ireland alone this was true for men: in the other three areas the rate increased with age. Other forms of tuberculosis have generally their heavier incidence at ages 15-24. As already stated, deaths from cancer at young adult ages are practically confined to the ages 35-44. All the other diseases shown, except diseases of childbirth and violence other than suicide, increase with age. As regards diseases of childbirth, the age incidence is obviously related to age of mother at birth of child.

The material in Table IV can also be studied by expressing the death rates for each main cause as a proportion of death rates from all causes in each of the three age groups. From this point of view, in 1949 the incidence of respiratory tuberculosis was greatest for men in the age group 25-34 (when it accounted for 44% of deaths in Ireland) and for women in the age group 15-24 (in Scotland 61%, in Ireland 51%).

The first International Rorschach Congress decided in 1949 to publish a journal devoted to papers dealing with the Rorschach and other projective techniques for the study of personality. Hitherto such "Rorschachiana" had appeared in supplements to the *Schweizerische Zeitschrift für Psychologie*. The first number of the new quarterly journal, *Rorschachiana*, has now been published by Hans Huber, of Berne, at an annual subscription of 30 Swiss francs. Papers are published in English, French, German, or Latin.