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SOME SUICIDE STATISTICS

BY

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The causes of suicide are diverse and often too obscure to elucidate in individual cases. A leading article in the *British Medical Journal* (1947) pointed out that suicide has been described as "our most baffling social disease." The incidence of this manner of ending life doubtless depends in part on religious, philosophical, and cultural, as well as social, influences. Many studies, both individual and statistical, have been made of suicide, but it is hoped that the following contribution may draw attention to certain features of suicide statistics hitherto unconsidered, or add fresh evidence in confirmation of data already published.

The graphs and tables given below (referring only to civilians) are calculated from various national statistics, and some of them indicate certain factors influential in causing people to commit suicide. Among these are economic factors and the relation between our present society and old people. The suicide rate might be reduced, as the infant mortality rate and the incidence of some communicable diseases have been, with the help of appropriate social measures.

It is commonly believed that the suicide rate in England and Wales, while showing considerable fluctuations, is in general rising. For instance, Stengel (1950), in a recent review of the literature, says that the suicide rates in England and Wales have shown a steady increase in recent years after a marked decrease during the war, though they are still below the 1938 figures. But this is too broad a generalization, and Figs. 3 and 4 below reveal that the rates in different age groups and for the two sexes are now behaving differently.

The death rate in England and Wales for suicide per million males in four age groups is shown in Fig. 1 by decades from 1861 to the end of 1920. The upward trend in every age group until 1911 is clearly shown. In the decade that includes the 1914-18 war the rates

all fell, though precisely by how much is questionable because of the difficulty of estimating the civilian population during the war.

The death rates for suicide among women changed over these decades in a similar way, as Fig. 2 shows,

FIG. 1.—Suicide rates per million in males (civilian), England and Wales, in decades 1861-1920, by age groups: under 25, 25-44, 45-64, 65 and over.

FIG. 2.—Suicide rates per million in females (civilian), England and Wales, in decades 1861-1920, by age groups: under 25, 25-44, 45-64, 65 and over.

except in those aged 65 and over, in whom the rates did not go markedly up or down. (The vertical scale is two and a half times that of Fig. 1, and the changes are magnified by that much in comparison.) The age group with the highest rate among women is consistently 45-64 years, whereas in men it is the age group 65 and over. Since 1921 new features have appeared in the trends, which are referred to below.

Fig. 3 shows how the death rates for men in the three upper age groups descended to a low point in 1924, climbed irregularly to a peak in 1932, went to a secondary peak in 1938, and then fell and rose during and after the war. Since the war the rates for the two upper age groups have been ominously rising. But in 1949 they were still remarkably low in comparison with previous years (see also Table A, Appendix), and the rate for the age group 65 and over declined slightly from 1948 to 1949. The rates for the age group 25-44 may continue to fall. Certainly there was no post-war inclination upwards such as is seen in the two higher age groups, and

the rates for this age group were also at an unusually low level in comparison with the rates for the previous years (Table A, Appendix). The rates for the age group under 25 were in 1949 at about the average level for the period reviewed.

The rates for women contrast in several respects with those for men, and are illustrated in Fig. 4 (see also Table A, Appendix). The rates in the two upper age groups have risen sharply since the war. Indeed, the rate for women aged 65 and over was in 1949 higher than ever previously recorded for that age group, and the post-war rates for women aged 45-64, though declining from 1948 to 1949, are not far short of the peaks in the 'thirties. As before, it was the age group 45-64 that showed the highest rates except in 1947 and 1949. The rates for younger women were more favourable. In the age group 25-44 there is no post-war upward trend, rather the reverse, and the rates compare favourably with those 50 to 60 years ago, while being considerably below most of those for the intervening years. Best of all are the rates for the age group under 25; these have declined fairly steadily since 1934, and are distinctly below even the rates of 1861-1900.

FIG. 3.—Suicide rates per million in males (civilian), England and Wales, in years 1921-49, by age groups: under 25, 25-44, 45-64, 65 and over.

Unemployment

Norwood East (1913) compared some figures for suicide and unemployment and concluded that the rate of suicide was adversely affected by unemployment. Dublin and Bunzel (1933) compared suicide data with data on

FIG. 4.—Suicide rates per million in females (civilian), England and Wales, in years 1921-49, by age groups: under 25, 25-44, 45-64, 65 and over.

"general business conditions" provided by a public utility corporation for the years 1910-31 in ten American cities. They found an inverse correlation between the suicide index and the business index, each based on annual data ($r = -0.55$, $S.E. = 0.15$)—that is, the better the business, the fewer the suicides. From other figures they concluded that the closest correspondence between suicides and business conditions was among white males ($r = -0.66$, $S.E. = 0.13$); the correspondence among females was less ($r = -0.44$, $S.E. = 0.18$). But in Massachusetts they found much lower correlation coefficients. They also gave some figures for England and Wales, but the unemployment statistics for the years they considered are too incomplete to have any importance attached to them. Dahlgren (1945) found that men more often than women mention financial motives (including unemployment) for attempted suicide.

Unfortunately, unemployment statistics in Great Britain are published in such a form that any exact comparison is impossible. For instance, they cannot be standardized by age groups as the statistics for suicide can be. Nor are the figures from year to year strictly comparable in some cases, for certain sections of the population from which the figures of unemployed have been recorded have been included or excluded by changes in the various Acts governing unemployment benefit.

Among such changes made between 1923, when fairly sound figures for Great Britain were first available, and 1947, after which the population at risk was greatly changed by the National Insurance Act of 1946, are the following: in 1928 persons of 65 and over were excluded, and in 1940 women aged 60-64 were excluded; in 1934 juveniles of 14 and 15 were included; agricultural workers were included in 1936, certain domestic workers in 1938, and non-manual workers earning £250 to £420 a year in 1940. In spite of these imperfections the comparison is made, with the admission that it can be only a rough one, in Figs. 5 and 6.

FIG. 5.—Comparison between numbers of male suicides, shown thus ———, and numbers of unemployed males, shown thus - - - - -, during 1923-47 (Great Britain).

Since the figures for unemployed cannot be standardized by age groups, the figures for suicides have not been, and the crude figures for Great Britain have therefore been given. The suicide figures were obtained from the *Annual Reviews* of the Registrars-General of England and Wales and of Scotland; those for unemployed, which are the average of the monthly figures for each year, were kindly supplied by the Ministry of Labour and National Service. They are given in Table B, Appendix.

The curves shown in Fig. 5 for male suicides and unemployed males indicate some association. Both descend to a trough in 1924, rise to a peak in 1932, jump to a small peak in 1938, and sweep down through the early years of the war only to rise again to their respective levels in 1947. It is probably safe to conclude that Fig. 5 confirms the suggestion that unemployment is influential, directly or indirectly, in causing men to commit suicide. But unemployment may be either the sign or the cause of other social disorders that have a more direct relation to the problem. Particularly is this so during the war years. Fig. 3 shows that the suicide rates of men aged 65 and over also rose to their highest peak in 1932, reached a lesser peak in 1938, and fell and rose during the war. The unstandardized figures hardly allow of any certain conclusion, but they do suggest that, when society is in such a condition that many men are unemployed, then we may expect an unusually high incidence of suicide in men. It is unsafe to speculate from this evidence on how direct is the relation between suicide and unemployment.

Similar graphs for female suicides and unemployed females are given in Fig. 6. The curves are only vaguely related, and suggest that unemployment, or the society of which it is a feature, has little if any influence on the suicide rate in women.

In order to afford a rough comparison with the data of Dublin and Bunzel given above, the correlation coefficients for the British figures given here were calculated. For men suicides and unemployed, $r = +0.932$; $P < 0.01$. For women suicides and unemployed, $r = +0.474$; $0.05 > P > 0.01$.

As to the difference between the figures for men and those for women, Fisher's z test shows a difference of

FIG. 6.—Comparison between numbers of female suicides, shown thus ———, and numbers of unemployed females, shown thus - - - - -, during 1923-47 (Great Britain).

1.1601 and a standard error of 0.3015. The difference is 3.8 times its standard error.

We may conclude from these data that there is a high correlation between the figures for male suicides and those for unemployed males, a low correlation between the figures for females, and a significant disparity between the two correlation coefficients. The correlation coefficient between the figures for female suicides and those for unemployed males is $+0.497$ ($0.05 > P > 0.01$), and does not differ significantly from the correlation coefficient between the two sets of figures for females. The relative crudity of the figures leads us to conclude only that unemployment, or the social conditions of which it is a feature, has some influence on the incidence of suicide among men, but none of significance on that among women.

Age Distribution

During the last 80-odd years the age distribution of suicides in England and Wales has changed both in men and in women. The highest rate in men has nearly always been in those aged 65 and over, while the highest rate in women has nearly always been in those aged 45-64. The crude average age at which suicide is committed is not of much interest, for the age structure of the population has changed greatly in these years and the distribution about the mean is exceedingly asymmetrical. A standardized mean age for male and female suicides in England and Wales was therefore calculated from the rates of suicide in each age group instead of the numbers in each age group. As an approximation the highest age group was assumed to be closed, consisting of the years 75-84. The rates used were the rates per million for ten-year age groups at ages 25 and over, and for five-year age groups at ages under 25 (Registrar-General, 1940, 1948-51, 1949).

The effect of the changing age structure of the population was thereby eliminated, and the figures for different periods are comparable with each other, though they are not the actual average ages at which suicide was committed, since they are disproportionately weighted by the comparatively few elderly people and are therefore too high. The results are shown in Table I.

TABLE I.—Standardized Mean Age of Suicides in England and Wales, 1861-1948

Years	Age	
	Males	Females
1861-..	57.7	53.0
1871-..	58.8	53.1
1881-..	58.8	50.8
1891-..	57.8	50.1
1901-..	57.4	49.9
1911-..	58.0	50.5
1921-..	59.5	52.2
1926-..	59.2	52.2
1931-..	58.9	52.7
1936-..	59.0	54.4
1941-..	59.0	55.2
1946-9	61.1	57.1

There are some interesting fluctuations. The figures for both males and females descend to their lowest troughs in the decade 1901-11. Thereafter they rise, that for the women consistently, that for the men with interruptions in the trend. They show clearly that suicide in the last 50 years has increasingly become a disorder of elderly people. As the present century has

advanced, the old may have found their environment more hostile than the young; or the young and unstable, who might formerly have committed suicide in their tenderer years, have found society so tolerable in their youth that they survive to an age when, withdrawing their interest to some extent from their environment, they are no longer sustained by its attraction and succumb to loneliness.

Some changes in the age distribution of men and women who committed suicide in England and Wales during the years 1934-48 are analysed in Table II. The figures on which these are based are those published by the Registrar-General in his *Annual Reviews* for the relevant years. The numbers of suicides given here have been standardized by age groups against the combined male and female population of 1934. For ages 25 and over, ten-year age groups were used, for ages under 25, five-year age groups. The numbers of suicides attributed to each age group are the numbers expected if the age and sex structure of the population in those years had been the same as that of the total population in 1934. The percentages have been calculated from the standardized numbers. Differences in the age and sex structure of the population from year to year have thereby been eliminated.

TABLE II.—Standardized Numbers of Suicides Committed by Men and Women in England and Wales in 1934-48

Years	Age Group	Suicides				Sex Ratio (% Males)
		No.		% in Age Groups		
		M	F	M	F	
1934 .. {	Under 55	2,241	1,114	54.9	70.0	66.8
	55+	1,840	478	45.1	30.0	79.4
1935 .. {	Under 55	2,031	1,078	55.1	69.1	65.3
	55+	1,655	482	44.9	30.9	77.4
1936 .. {	Under 55	1,896	988	53.3	66.7	65.7
	55+	1,658	494	46.7	33.3	77.0
1937 .. {	Under 55	1,870	1,013	53.3	66.0	64.9
	55+	1,638	522	46.7	34.0	75.8
1938 .. {	Under 55	1,882	1,015	52.6	65.6	65.0
	55+	1,698	533	47.4	34.4	76.1
1934-8 .. {	Under 55	9,920	5,208	53.9	67.5	65.6
	55+	8,489	2,509	46.1	32.5	77.2
1939-45 {	Under 55	10,146	5,407	54.9	63.3	65.2
	55+	8,319	3,132	45.1	36.7	72.6
1946 .. {	Under 55	1,374	819	53.7	61.7	62.7
	55+	1,187	508	46.3	38.3	70.0
1947 .. {	Under 55	1,283	790	51.5	59.3	61.9
	55+	1,209	543	48.5	40.7	69.0
1948 .. {	Under 55	1,350	791	50.4	57.2	63.1
	55+	1,329	592	49.6	42.8	69.2
1946-8 .. {	Under 55	4,007	2,400	51.8	59.4	62.5
	55+	3,725	1,643	48.2	40.6	69.4

We see here the steady reduction of the number of both men and women who commit suicide under the age of 55. The following percentages are all calculated from standardized numbers. In 1934, 54.9% of the male suicides were under 55, and 70% of the female; in 1948 the corresponding figures were 50.4% and 57.2%. If the years before and after the war are compared, in 1934-8 of the men who committed suicide 53.9% were aged under 55, and, in 1946-8, 51.8%. This is a fall of 2.1%. The corresponding figures for women are from 67.5% to 59.4%, a fall of 8.1%. The continuity of the decline during these years, so especially notable in women, suggests that the decline may persist.

The changes in the sex ratios over these years are interesting. In 1934-8, 77.2% of the suicides aged 55

TABLE III.—Numbers of Suicides and Attempted Suicides, Men and Women, England and Wales, 1934–8 and 1946–9

Years	Age Group	Suicide				Attempted Suicide				Sex Ratio (% Males)	
		No.		% in Age Groups		No.		% in Age Groups		Suicide	Attempted Suicide
		M	F	M	F	M	F	M	F		
1934–8	Under 50	7,463	4,269	42.2	51.3	5,324	5,462	60.1	73.4	63.6	49.4
	50+	10,235	4,050	57.8	48.7	3,534	1,977	39.9	26.6	71.6	64.1
1946–9	Under 50	4,529	2,705	39.8	41.1	5,253	5,938	64.2	72.4	62.6	46.9
	50+	6,853	3,884	60.2	58.9	2,923	2,268	35.8	27.6	63.8	56.3

and over were men; in 1946–8 only 69.4%. The difference is 7.8%. Of suicides aged under 55, 65.6% were males in 1934–8, and 62.5% in 1946–8, also a distinct decline. These changes are due to a relatively increasing number of women committing suicide at all ages and more especially at ages 55 and over.

Suicide and Attempted Suicide

National statistics of attempted suicide are bound to be incomplete, for they refer only to cases known to the police. Nor are they published in a form suitable for age standardization. But some instructive comparisons can be made from Table III. The figures, which refer to England and Wales, are taken from *Criminal Statistics* for the years in question. Unfortunately, age groups different from those in Table II have to be used. Figures for the war years have been omitted, for unless standardized they are misleading because of great changes in the population at risk.

The most notable feature of these figures is the relatively high proportion of women among the suicides attempted but not completed by people aged under 50. Of attempted suicides in people aged under 50 the majority were women both before and after the war. Of people who attempted suicide aged 50 and over and of those who committed suicide at any age, the majority were men. Nearly three-quarters of the women who attempted suicide were aged under 50. These findings are broadly in agreement with those of Dahlgren (1945) and Moore (1937).

Seasonal Distribution

The fact that suicides in Europe are more numerous in spring and summer has been known for over a century. Dahlgren (1945) cites Esquirol as having referred to this distribution in 1838, and his own figures for Malmö for the years 1933–40 were similarly distributed, though they showed a small peak in September. McKinlay (1948) gave figures for suicides in Scotland for the period 1911–40, and these also were greater during spring and early summer than at other seasons, though rising to a small peak in November. Both these authors standardized their figures to compensate for the varying lengths of the months, but recorded their standardized figures only for men and women combined.

In Fig. 7 (and Table C, Appendix) the distribution of suicides by months is given for England and Wales for the sexes separately in three periods, 1921–9, 1930–9, and 1940–8. The crude figures were obtained from the Registrar-General's *Annual Reviews* for the relevant years. They were standardized to compensate for the different lengths of months, and monthly standardized numbers were then expressed as a percentage of the annual total.

The typical distribution is apparent and is common to both men and women. The months in which peaks occur vary slightly, as they do in other published statistics, but the favourite season for committing suicide is clearly from spring to about midsummer. It was thought to be of interest to find out whether a converse distribution occurred south of the Equator. McGeorge

FIG. 7.—Percentage distribution of suicides in England and Wales by months in certain periods of years; based on numbers standardized to eliminate variability in length of months.

(1942) found in a series of 523 attempted suicides in Australia that the favourite season was the summer, the least favoured the spring. But he did not take account of the varying lengths of months.

Here the monthly suicide figures for Australia have been obtained from the Australian *Demography Bulletins* for the relevant years, standardized, and expressed in the same way as those for England and Wales. The result is shown in Fig. 8. Though the

FIG. 8.—Percentage distribution of suicides in Australia by months in the period 1930-9; based on numbers standardized to eliminate variability in length of months.

TABLE IV.—Percentages of Standardized Numbers of Suicides in Six-months Periods

	March-Aug.	Sept.-Feb.
England and Wales:		
1921-9 { M ..	53.45	46.55
{ F ..	53.41	46.59
1930-9 { M ..	53.20	46.80
{ F ..	51.89	48.11
1940-8 { M ..	53.58	46.42
{ F ..	52.88	47.12
Australia:		
1930-9 { M ..	47.32	52.68
{ F ..	45.19	54.81

curves are less regular than those for England and Wales, the converse distribution is apparent.

Percentages of suicides in six-months periods, calculated from monthly standardized numbers, are given in Table IV, which shows clearly the distinction between the two countries as well as that between the two seasonal periods.

No explanation can be offered of why people show any preference for committing suicide in the months that they do. It is not due to unemployment, which tends to be lower in summer than in winter. Similar distributions have been found for admissions to mental hospitals. But such analogies do nothing more than suggest that in the warmer months the relation between the individual and his environment is more strained than in the cooler: why that should be is unknown.

Summary

Some statistics of suicide are presented to show how variations in the incidence from year to year run in different age groups and how they differ between the sexes.

The rather crude figures given here suggest that unemployment among men, or the society of which it is a feature, probably influences the suicide rate among men considerably; unemployment among women probably has no significant effect on the suicide rate among women; nor does unemployment among men have any decisive influence on the suicide rate among women.

The average age (calculated from standardized figures) at which suicide is committed has been rising in both men and women since 1900. A relatively high proportion of the people attempting suicide under the age of 50 are women.

The highest incidence of suicide in England and Wales is from spring until about midsummer, and the seasonal distribution is similar in Australia.

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APPENDIX

TABLE A.—Suicide Rates per Million, England and Wales (Civilians): by Decades 1861-1920, by Years 1921-49

Years	Suicide Rates per million							
	Males				Females			
	0-	25-	45-	65+	0-	25-	45-	65+
1861-70 ..	15	125	309	329	11	43	85	79
1871-80 ..	15	137	329	395	11	45	87	84
1881-90 ..	17	155	356	451	14	52	88	76
1891-1900 ..	22	186	391	454	15	62	98	77
1901-10 ..	24	197	448	476	16	67	110	77
1911-20*	19	157	326	390	14	62	102	72
1921 ..	17	147	391	506	12	57	117	77
1922 ..	20	148	391	484	12	64	119	79
1923 ..	21	154	387	485	15	58	120	79
1924 ..	19	138	352	427	11	63	121	85
1925 ..	21	146	381	440	15	69	133	88
1926 ..	21	153	411	485	17	77	142	91
1927 ..	28	177	433	523	15	80	158	101
1928 ..	26	163	433	521	16	77	159	105
1929 ..	23	163	443	525	15	82	159	102
1930 ..	27	171	431	506	15	84	149	123
1931 ..	28	159	458	515	16	85	146	107
1932 ..	29	185	492	561	15	85	171	128
1933 ..	30	181	461	517	16	97	166	126
1934 ..	27	175	445	534	16	96	154	120
1935 ..	29	158	399	481	13	95	155	117
1936 ..	25	152	386	467	13	79	162	114
1937 ..	25	151	375	486	13	86	158	131
1938 ..	22	152	391	498	12	84	169	123
1939 ..	25	135	358	462	11	85	159	133
1940 ..	17	123	312	464	9	69	155	133
1941 ..	16	117	232	384	7	62	126	101
1942 ..	17	109	211	340	6	63	118	103
1943 ..	17	128	219	339	7	70	112	100
1944 ..	16	120	226	350	6	61	107	100
1945 ..	14	114	226	371	8	67	123	108
1946 ..	15	121	244	412	9	70	145	128
1947 ..	17	100	254	410	8	66	146	148
1948 ..	19	108	269	445	6	65	159	148
1949 ..	17	108	278	443	8	61	144	156

* Figures slightly inaccurate in this decade because of war years.

TABLE B.—Great Britain, 1923-47: Numbers of Suicides in Each Year and Numbers of Unemployed in Thousands (Average of Monthly Figures) in Each Year

Year	Suicides		Unemployed (in Thousands)	
	Males	Females	Males	Females
1923	3,132	1,144	1,022	268
1924	2,878	1,202	883	248
1925	3,106	1,350	1,003	237
1926	3,384	1,489	1,111	291
1927	3,811	1,599	919	193
1928	3,751	1,605	1,012	219
1929	3,805	1,653	990	240
1930	3,875	1,671	1,430	486
1931	3,971	1,669	2,029	621
1932	4,407	1,836	2,282	462
1933	4,265	1,912	2,124	397
1934	4,211	1,871	1,804	356
1935	3,855	1,835	1,683	353
1936	3,786	1,789	1,439	316
1937	3,747	1,871	1,197	287
1938	3,853	1,887	1,366	424
1939	3,624	1,836	1,120	393
1940	3,152	1,765	608	354
1941	2,584	1,478	183	167
1942	2,345	1,448	77	46
1943	2,439	1,466	54	28
1944	2,421	1,378	51	23
1945	2,439	1,554	84	53
1946	2,883	1,744	260	115
1947	2,890	1,775	342	138

TABLE C.—*Actual and Standardized Numbers of Suicides by Months in Certain Periods in England and Wales and in Australia*

Month	England and Wales												Australia			
	1921-9				1930-9				1940-8				1930-9			
	Actual No.		Standardized No.		Actual No.		Standardized No.		Actual No.		Standardized No.		Actual No.		Standardized No.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Jan. . .	2,234	823	2,193	808	3,058	1,400	3,002	1,374	1,751	1,005	1,720	987	591	147	580	144
Feb. . .	2,009	857	2,167	924	2,767	1,239	2,986	1,337	1,729	991	1,858	1,065	537	139	580	150
March . .	2,396	1,006	2,352	988	3,246	1,478	3,187	1,451	2,096	1,120	2,058	1,198	571	135	561	133
April . .	2,494	961	2,530	975	3,325	1,529	3,373	1,551	2,075	1,175	2,106	1,192	475	99	482	100
May . .	2,542	1,057	2,496	1,038	3,374	1,507	3,312	1,479	1,977	1,207	1,942	1,185	520	127	511	125
June . .	2,475	1,045	2,511	1,060	3,262	1,509	3,309	1,531	2,140	1,186	2,172	1,204	445	114	451	116
July . .	2,570	1,053	2,523	1,034	3,180	1,420	3,122	1,394	1,960	1,256	1,925	1,233	522	135	512	133
Aug. . .	2,287	915	2,245	898	3,015	1,321	2,960	1,297	1,759	1,084	1,727	1,065	487	138	478	135
Sept. . .	2,161	885	2,192	898	2,911	1,312	2,953	1,331	1,760	1,038	1,786	1,053	558	134	566	136
Oct. . .	2,145	896	2,106	880	2,718	1,362	2,668	1,337	1,654	1,061	1,624	1,042	546	174	536	171
Nov. . .	1,979	830	2,008	842	2,621	1,341	2,659	1,360	1,613	1,047	1,637	1,063	550	135	558	137
Dec. . .	2,140	891	2,101	875	2,728	1,354	2,678	1,329	1,740	1,118	1,709	1,098	524	164	514	161

The standardized numbers were computed to four decimal places for the graphs and calculations given in this paper.

ANTIHISTAMINE TREATMENT OF ACUTE NEPHRITIS

BY

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In almost every case of acute nephritis a history can be obtained of a bacterial, usually a streptococcal, infection which precedes the nephritis by between one and three weeks; it was this uniform association, and the characteristic time interval, which gave rise to the idea that immunity responses were involved in the pathogenesis of the disease—an aetiological hypothesis which is now widely accepted. The known mediation of histamine or a histamine-like substance as a final common path in the production of a variety of hypersensitivity phenomena made it likely that sooner or later a trial would be given to one of the recently developed antihistamine drugs in the treatment of acute nephritis.

The theoretical basis of such a treatment is tenuous, consisting as it does merely in the observed association mentioned above; and a consideration of the characteristics of the disease will suggest that the interpretation of the results in a fairly short series of cases is likely to be very difficult.

Acute nephritis is known to have, on the whole, a very good prognosis, but nevertheless to follow a widely variable course. There are very few cases which, properly managed, will suffer permanent impairment of renal function or develop progressive disease, though the exact effect of such management is not clearly known: it follows that even if a treatment were found which would absolutely prevent such serious consequences a very long series would have to be studied to prove that this was the case. There are only two ways in which this difficulty might theoretically be overcome.

First, if it were possible to define clearly on admission which cases were likely so to progress. Unfortunately this is not possible, nor has it ever been shown that there is a strong correlation between the severity of the disease at its inception, however measured, and the long-term prognosis.

Secondly, if the treatment under trial were to give dramatic and sudden relief of the symptomatology of

the disease. Even if this were to occur the effect upon long-term prognosis would not be clearly proved until a large series had been followed up, although the probability of such effect would be strong enough to justify the optimistic use of the treatment.

Craig, Clark, and Chalmers (1949) reported their experience in the use of mepyramine maleate ("anthisan") in the treatment of a series of cases. The average duration of the disease in their treated series was two to three weeks, and in the series of untreated cases, with which it was compared, about four months. This result was encouraging, but the work suffered, as the authors pointed out, from two defects: first, there were only eight cases in each series; and, secondly, the treated and the control cases occurred in different years, and the series could not therefore be regarded as adequately controlled.

Present Investigation

After the publication of their article it was decided to carry out a carefully controlled trial of mepyramine maleate in the treatment of acute nephritis at the Hospital for Sick Children.* The arrangements for the trial were as follows.

All cases of acute nephritis—Ellis (1942) Type 1—admitted to the hospital between May 1949 and May 1950 were included in the series. Each case on admission was allotted a serial number. Odd numbers were treated with mepyramine maleate; even numbers were controls. The following records were made in all cases; (a) a 24-hour specimen of urine was collected whenever possible for each of the first few days; (b) daily blood-pressure readings were taken until stable and normal; (c) daily blood-urea levels were estimated until they were stable and normal; (d) daily fluid intake was measured for the first few days; (e) daily weight was recorded until stable; (f) the E.S.R. was estimated on admission and weekly until normal; and (g) when gross haematuria had ceased, weekly Addis counts took the place of the daily urinary investigation until discharge, after which they were performed monthly and subsequently at longer intervals.

Mepyramine maleate was given to alternate cases for ten days in the following dosage:—*Children under 3*: 300 mg. daily in divided six-hourly dosage; *children over 3*: 600 mg. daily in divided six-hourly dosage.

*The inefficacy of mepyramine in a series of similar length has since been reported by Thomson (1949).