healthy animals, and careful exclusion of new infection, will lead to the perpetuation of the disease through many generations. In small herds the infection may cease, in large herds it will probably be perpetuated indefinitely.

2 We can find no conclusive evidence that environmental, non-specific factors, modify in any significant way the secular course of epidemicity in our herds.

3 Pre-immunization will greatly lower mortality during the early herd-life of the pre-immunized animals. Ultimately the rates of mortality of pre-immunized and naturally immunized animals approximate to a level much above zero. In these infections a solid immunity—namely, an approximation of the specific mortality of the herd to zero—cannot be attained by any method which has so far been tested.

ADDENDUM

Since this opening paper was written we have gained enough experience to authorize us to suggest that in virus infections herd immunity develops on lines other than those illustrated in the bacterial infections we have studied. The kindness of Miss J. E. Marchal, of the National Institute of Medical Research, has enabled us to study in herds the virus disease, infections *Ectromelia*, which she first described in 1930 (*Journ. Path. and Bact.*, 33 *ii.*, 1930, 713.) Miss Marchal discovered this infection in a stock of mice; it is clinically characterized by an oedematous swelling of a foot, followed by gangrene and separation, but often goes on to generalized illness and death. Miss Marchal proved that the essential *materies morbi* was a virus, and that animals which had passed successfully through an attack were very resistant to the injection of virus-containing substance. We have, down to June 30th, 1931, had two herds infected with *Ectromelia* under observation respectively for 224 days and 166 days. In the former 672 mice and in the latter 495 mice have been at risk, and the aggregate mouse-days of exposure were 25,168 and 16,374 respectively.

So far as experience during the early days of cage life is concerned, these heavily infected communities differed in no material way from the similarly treated herds wherein either *Past. muriseptica* or *Bact. aertrycke* was the *materies morbi*. But when the rate of mortality began to decline the fall continued, passed below the asymptotal line which characterized the bacterial infections, and ultimately reached a level differing in no important way from that of the rate of mortality of uncontaminated herds. The table (Table IV) compares the limited expectations of life of *Ectromelia* herds, a *P. muriseptica* herd (P_3), and of a herd not exposed to any infection. The latter, of course, enjoy an expectation which, even at entry, falls but little short of the theoretical 60 (their slight inferiority to mice kept under conditions as nearly ideal as can be realized in captivity is attributable to the fact that, in a large herd, battle, murder and sudden deaths are of more vital statistical importance than in small groups). The *Ectromelia*—and the bacterially—infected herds have expectations of life at entrance less than half the theoretical value, and, as we have already seen, the bacterially infected do not, at any age, attain a value much above 50 per cent. of the ideal. By the 50th day of herd life the survivors of the virus infection are almost on a par with the normal mice, and the evidence suggests that this advantage will not be lost, that the survivors in these highly infected herds admitting unsalted immigrants are as little endangered by their environment as the parents of children with measles in an urban community.

TABLE IV.

EXPECTATION OF LIFE LIMITED TO 60 DAYS.

Cage age in days	*Ectromelia* 1 (18.11.30–30.6.31)	*Ectromelia* 2 (16.1.31–30.6.31)	P_3 (6.3.21–30.4.23)	Normal mice (4.10.29–27.5.30)
0	26.86	28.37	22.49	56.79
1	26.13	27.66	21.82	56.86
2	25.39	26.90	21.31	56.76
3	24.61	26.13	21.05	57.02
4	23.92	25.42	21.28	57.10
5	23.14	24.70	21.48	57.37
6	22.39	23.98	21.86	57.29
7	21.85	23.57	22.32	57.21
8	21.66	23.38	22.57	57.12
9	22.33	23.70	23.00	57.03
10	22.69	24.04	23.48	57.12
11	23.35	24.28	23.55	57.03
12	24.47	25.22	23.76	57.30
13	25.35	26.30	24.04	57.22
14	26.51	26.66	24.54	57.14
15	27.86	27.58	24.96	57.05
20	36.48	34.62	29.62	56.79
25	42.98	42.53	33.12	56.72
30	47.07	44.53	34.41	56.69
35	51.13	48.46	34.74	57.65
40	51.12	48.81	33.81	58.30
45	54.17	50.92	32.63	58.42
50	54.24	53.28	32.23	58.37
55	53.42	54.99	31.70	58.52
60	55.14	55.74	32.06	58.47
65	56.64	56.64	32.37	58.44
70	56.66	56.06	32.96	58.62

SUICIDE FROM THE SOCIOLOGICAL ASPECT*

BY

SIR HUBERT BOND, K.B.E., M.D., D.Sc.ED., LL.B.LOND., F.R.C.P.

ONE OF H.M. SENIOR COMMISSIONERS OF THE BOARD OF CONTROL, AND CIVIL CONSULTANT TO THE ROYAL NAVY

Suicide, from whatever aspect it is approached, is undeniably an important subject. It is one which for many years has interested me; and, for a number of years, it has been my habit to collect newspaper cuttings and other records of suicides in the hope that opportunity may present itself to gather together the special points which have occurred to me in the course of their perusal. My collection is quite a haphazard and miscellaneous one, and is much too large to permit analysis of it at short notice for the purpose of this discussion. Without any such analysis, certain points, however, have forced themselves on my notice, of which two or three may be appropriate to this discussion.

SUICIDE A MEDICAL PROBLEM

For instance, the almost complete failure to realize the existence of medical problems beneath every case of suicide, coupled with the fact that most of these problems require for their right handling an adequate knowledge of mental disorders. As a consequence, is that contentment which exists with the present often far from effective procedure; and, with respect to inquests in cases of suicide and to charges of attempted suicide, the further failure to see the place they occupy in problems of Mental Health and the peculiarly valuable opportunity they offer for promoting Preventive Medicine. With rare exceptions, those, in whose hands lie inquests and charges of attempted suicide, not only treat these occurrences as *prima facie* crimes, as is their duty according to present law in England and Wales, but they proceed to treat the parties concerned entirely upon socio-legal lines, and almost invariably ignore or mishandle the medical or psychological aspect. It is not my wish to cast any aspersion or adverse criticism on these men and women either individually or collectively. Quite the reverse. Over and above professional attainments (to praise which on such an occasion as the present would be an impertinence), coroners and magistrates, for these it is who are mostly concerned, we know to be

* Read in opening a discussion in the Section of Neurology and Psychiatry, at the Annual Meeting of the British Medical Association, Eastbourne, 1931.

shrewd, common-sensed and kind; and, even from the summaries of proceedings which appear in the newspapers, it is not difficult to discern either the close and anxious care given to these inquiries, or, in cases of attempts, the kindly efforts to rehabilitate the would-be suicide. All that and much more is willingly granted: my point is that either the psychological aspect is ignored, or it is dealt with by *obiter dicta* which, however well intended, are, in point of fact, often erroneous or else are in the nature of platitudes, and which, while they may deal with the situation for the moment, quite fail to go to the root of the matter. Again I ask not to be misunderstood: I am casting no stones and making no attack upon persons, the difficulties of whose task we, of all people, ought to realize; for these difficulties are part of our daily work, and without thorough training and knowledge of psychological medicine there is no reason to imagine that we should be more effective.

In one particular I should like to lodge an actual protest: namely, against the practice frequently made of putting questions, at inquests or in magisterial proceedings, as to the existence, present or former, of insanity or of instances of suicide in other members of the family. "Evidence must be relevant" is a Rule, the strictness of which in English law might be sufficient, in my opinion, to rule out the admissibility of such questions, especially in the light of the well-known unreliability of statistics relating to family history in mental disorder. Apart from the legal aspect of this point, and however valuable medically such information may be, thus to catechize persons as to insanity or suicide in their family is surely to seek it in the wrong manner and in the wrong place. The practice is, in my view, highly pernicious. It spreads ill-founded, possibly false, doctrines as to the influence of heredity in the causation of suicide and mental disorder; to my own knowledge it sometimes causes deep pain and distress, and is apt to foment a dread of liability to insanity or suicide. This already much too common and generally needless dread should be dissipated at every possible opportunity, as part of mental health propaganda. In truth, I could cite several cases of suicide—and some of my hearers doubtless must know of other cases—in which I am convinced the act was mainly due to the doer's belief that suicidal propensity was inherent in the family; and still more numerous are the cases of mental disorder that I have known, and know now, in which the attack seemed clearly to have been precipitated by unhealthy rumination upon the fact that relatives have been mentally ill, in the light of unwarranted and mischievous statements as to heredity and insanity. Well indeed, with Job, might such patients say—and, in fact, some of them have said to me—"For the thing which I greatly feared is come upon me, and that which I was afraid of is come unto me."

It is, I believe, a fact that, throughout the whole of my collection of records of suicides and attempted suicides, there is not a single instance of evidence of determined and enlightened inquiry as to what steps were taken by the relatives and friends to prevent the occurrence by securing really adequate treatment; nor, in the case of attempts and in discharging the accused, either on his own undertaking or to the care of friends, is there a single instance reported of insistence on adequate medical treatment and inquiry as to where that treatment will be obtained. Alas! were such inquiries made and pressed, too often would it be discovered that means of treatment are far from satisfactory; but that is just where such inquiries could render great service. Under the Mental Treatment Act there is complete opportunity to organize thoroughly effective treatment; and, now that mental hospitals are a charge on county and county borough funds, to provide, should coroners and magistrates desire it, for the attendance of doctors with expert knowledge of mental disorders. The position, as I have ventured to depict it, cannot be regarded as satisfactory. It is not a question of finding someone to blame. We are all of us in our respective spheres responsible. Its rectification is part of the general problem of Mental Health; and, besides the lead and help which the Central Authority can give, and indeed are giving, it can best be dealt with, I suggest, by a Mental Health Committee in each area, formed by a unification, as permitted by statute, of the statutory committees under the Lunacy and Mental Deficiency Acts; and by assigning to it wider powers and duties than those devolving on it under those Acts. It most assuredly should not be approached by any anti-suicide campaign.

SUICIDE AS A SUBJECT FOR ATTENTION

That, in works on Psychiatry and Psychology, so comparatively brief notice is taken of suicide has been long a matter of astonishment to me; and that it is in need of renewed and much further study from a symptomatological and psychological standpoint I am in no doubt. The truth, I believe, is that it has failed to get the clinical study which other symptoms and disturbances or perversions of instinct have had, because, on return to convalescence or, at any rate, to "accessibility," there have been a fear and unwillingness—groundless and mistaken, in my opinion—to remind the patient of so serious an event as the attempt to commit suicide. In point of fact, this is one of the particularly favourable moments for vigorous psychotherapy. Such study should include, as suggested by Professor Robertson, of Edinburgh, careful inquiry, with the aid of trained social workers, into the environment, circumstances and personal history of a series of consecutive cases, of both suicide and its attempt. Attention on these lines is perhaps rather from the medical and psychological, than the sociological, aspect. In truth, it is not easy to maintain any sharp separation between these two aspects. For the purposes of both of them, and particularly of sociology, we are badly in need of up-to-date and easily accessible statistics of suicide and attempted suicide, related to the statistics of certain social and perhaps cosmic phenomena which experience has shown may have a bearing on them. Such statistics for our own country need careful study in the light of comparable ones for foreign countries and those of the Dominions and other parts of the Empire. With but six weeks' notice of this discussion, the utmost that I have been able to do is to get together and to consider, in the light of earlier figures, some figures for England and Wales belonging to certain years selected because they were Census years.

Let me admit a one-time impression, gathered from general comments in papers and others in relation to individual cases of suicide, that its rate has been increasing with somewhat disturbing velocity, and that a position perhaps was approaching which might demand attention and the consideration of means for its redress. I think, too, that there is a fairly widespread belief to that effect, coupled with the further notion that it is especially the suicides of persons in adolescence and early maturity that are responsible for the alleged rising rate. This implication of adolescents and young adults is certainly not justified; and, while there can be no doubt that, as already stated, the subject of suicide is ripe for much closer medical study than it has received, I greatly doubt whether, at any rate in our own country, it is, or is likely to be, a problem of serious moment. On the other hand, if it can be shown to be a matter for deservedly grave concern in other countries, it rightly behoves us not to over-

look the possibly false security of our own position. In this connection, is it not desirable to emphasize the value that might accrue from giving psychological medicine a place worthy of its importance in the Health Office of the League of Nations?

There are two reasons against the reality of any alleged increasing propensity to commit suicide. First, the intimate relation of suicide to mental disorder, as to which my belief is so firm as to amount to a strong doubt as to the existence of sane suicides. That attitude, I am aware, is contrary to legal doctrine and to the law, and goes considerably further than is taught in text-books on psychiatry; but I feel sure that the more closely individual cases are studied the more it will be realized how difficult, if not impossible, it is to be sure at the time of the act, even if only an attempt, that the doer was not mentally disordered. On this assumption follows my second reason —namely, the stability (approaching, indeed, rigidity) of the ratios expressing certain incidences, in particular those relating to mental disorders. The longer it falls to my lot to examine and to handle yearly statistics of notifications to the Commissioners, the more strongly does this uniformity or stability of ratios impress itself upon me. It has formed one of the principal topics in the short course of William Witherington lectures which it has been my privilege to give this term in the University of Birmingham; and, in its further study and right understanding which I do not think has been reached yet, I feel sure lies the correction of some mistaken beliefs and the key to questions that hitherto have baffled us.

That there is good ground for my scepticism and that the incidence of suicide presents no position for alarm is borne out, in my opinion, from the figures which presently shall be laid before you. It should be remembered that, in speaking of "suicide" and of the "suicidal propensity," consideration should not be limited to the completed act, but should take cognizance of statistics relating to attempts at suicide; and that both these acts are merely the overt phenomena of an urge to commit suicide—a mental condition and a reversal of the *lex nostrae conservationis* itself. Is not this law too elemental and too strong to allow the possibility of any increase in the propensity itself? Maybe the number of suicides and of attempted suicide, or rather their ratios to the population, has varied and will vary. Doubts have been cast even upon the reality of this variation, save within narrow limits; but, assuming its occurrence, the probability of its cause being external and accidental seems to me very great—to be dealt with partly, and mainly, as a medical matter and partly on sociological lines, but not as a problem of alarming moment. So-called "epidemics of suicide,"* into which, although their study presents many points of sociological interest, there is no time to go to-day, will illustrate the desirability of not erecting the subject into a "problem."

Suicide as a Sociological Phenomenon

Naturally, we feel more concerned with the present than with the past position of suicide. As with practically every subject, however, it is not possible to assess the present position without a competent knowledge of previous ascertainments: that is, of the subject's history in order, as Emerson said, to give value to the present hour and its duty. This history I have been at some pains to master and to summarize; but, although the period that it covers, omitting Biblical, classical, and mediaeval references to individual persons, goes no further back than the middle of the eighteenth century, time permits me to touch upon only the following few references—as being the more important ones.

Statistics concerning suicide can perhaps be said to date from 1750 as to Sweden and 1783 as to Switzerland and Paris. Most of those subsequently published, few of which were earlier than the second quarter of the nineteenth century, were collated into the well-known and remarkable book by Morselli of Turin, which may be said to include all available data up to 1876. For subsequent information upon the subject, especially as regards our own country, various books, papers and articles are available; but no work of anything like its comprehensive nature has appeared since that of Morselli.

It is the frequency of suicide, and of attempted suicide, considered also in relation to sex and age, and to mode of death, to which main attention has been given; but, in relation to its causation, endeavour has been made (evidently at the cost of much patient labour but with not very convincing results) to correlate numerous cosmic and social factors—climate, altitude, barometric readings, phases of the moon, seasons, months and time of day, races, religion, morality, occupation with noteworthy facts as to armies, state of trade, density of population, and the difference between urban and rural life, celibacy and parenthood, alcoholism and heredity, and the relationship to the psychoses. Some of the conclusions savour of the fantastic; others are highly interesting; but, even of the latter, there is no time to touch upon more than two or three.

Facts as to sex, age and mode of death are repeated and confirmed in my own statistics, and will be mentioned with them. My figures do not include attempts at suicide, and it is of interest to note that, in them, the predominance of males (with its average of 3 to 1) is not so marked as it is in cases of the completed act. Of interest, and perhaps of more importance than at first thought would seem likely, is the apparently well authenticated fact that the transitional period between spring and summer in northern countries has tended to show the highest proportion of suicides. To be able to compare these figures with those for New Zealand and antipodal parts of Australia would add to the interest. Instead, however, of the explanations offered for this phenomenon, I should be inclined to suggest that those who uphold the potency of septic foci as a cause of mental disturbance would have, as part of their thesis, a much more understandable theory to offer, and one moreover that can be adequately tested. With either the justification or wisdom of laying stress on heredity as a cause of suicide, I am not in agreement, but there are not wanting writings which express the opposite view and which advocate preventive legislation along these lines. Studies which relate suicides and attempted suicide to alcoholism are highly important, and they have been the means of bringing out many points of much interest.

It is round the frequency of suicide and its incidence expressed on a ratio to the population that principal interest and discussion has centred. Starting with such ludicrously a priori beliefs as that, because we English have the reputation for taking our pleasures sadly and because our climate is regarded by foreigners as damp, cloudy and dark, it would be safe to regard our country as the "classic land of suicide," Morselli, while dissipating this notion as to England, and while finding that she had by no means as high a ratio as many other countries, was convinced that his figures proved that, with very few exceptions such as Norway and Denmark, in every country in Europe the suicide rate had been and was continuing to rise. He, however, allowed that, with respect to England, the ratio of 66 suicides to each million inhabitants had been stationary for the previous twenty-

* For some remarkable examples of collective suicides, see French Retrospect, by Dr. Macevoy, *Journ. Ment. Science*, Vol. xlv, January, 1899, pp. 174-7.

five years. That he took a gloomy and serious view of the situation is plain from such expressions as—"The terrible increase of suicide at the present time" (1879), "the suicidal epidemic of our age," "the alarming increase of this social calamity" and "this fatal plague of our age." Were all this not a serious over-statement or except there had been in the meantime a gratifying halt in this "plague's progress," it might be difficult to find adjectives lurid enough to describe the present position as to suicide in our midst; particularly when we must confess that, despite the warning some fifteen years earlier in the *Times* coupled with much sound advice, neither has the pace of life, said then (1864) to be excessive, slackened, nor has any of its advice been taken. Need that seriously disturb us, and may we not take it as a lesson not to be too easily moved by alarums? For, since the article was written, the pace of life, or what most people mean by that expression, has been vastly accelerated; whereas, so it seems to me, the position with respect to suicide has not altered materially.

INCIDENCE OF SUICIDE IN ENGLAND AND WALES DURING THE PAST 40 YEARS

The comparatively brief time at my disposal during the past six weeks has limited my statistical contribution to this discussion to a statement of the number of suicides which occurred in England and Wales during each of the four Census years 1891, 1901, 1911 and 1921, and during the year 1929. With the help of Mr. G. F. Williams and Mr. E. H. Warland in our Board's statistical branch, these have been set out in age-periods; and, with the exception of those relating to the year 1929, they have been expressed as proportions to each 10,000 of the population, the gross numbers of which have been shown also. Corresponding ratios have not been given for the 1929 incidence because it would have been against only an estimated population that they could have been worked out. Had this discussion been timed for next year or should it perchance then be re-opened, it would be possible of course to contrast the ratios of five Census years; and, with the extra time at our disposal, it would be possible also to elaborate the calculations in several serviceable directions. It is hoped, however, that such figures as there has been time to compile will prove sufficiently impressive to warrant certain deductions, the making of which is much facilitated by the additional five lists, one for each of the Census years and for the odd year, in which the methods adopted for suicide are classified and set out numerically, both in gross and in a percentage to the respective total number of suicides. The special importance and value of looking into the method of suicide adopted will become apparent in the course of my remarks.

The selected age-periods are eight in number, following the precedent of our Board's office which, in the main, is that of the Registrar General. These age periods are: under 15, 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, and 65 and upwards. It will be observed that the first, and especially the last, lend themselves least to comparison with the others; and that, of the other six periods, two are quinquennia and four are decennia, so that for purposes of comparison with the decennia, 15-19 and 20-24 should be grouped together. It, however, at once can be said that the cases of suicide in the period "under 15" are so few—ten boys and six girls in 1891 and, in more or less diminishing numbers down to one of each sex in 1929—that, although no doubt these in all 44 cases of suicide in children afford valuable opportunity for cognate medical study of a most instructive kind, yet for the purposes of my remarks they can be ignored.

Age-periods 15-19 and 20-24

Since they together form a decennium and as the remaining five periods, with the exception of the terminally indefinite one, are decennia, it will be convenient for purposes of comparison to take these two simultaneously. It will be noticed that all the ratios in the later quinquennium exceed those in the 15-19 period except in the cases of three pairs, each of them female, in which there was equality. As between the four Census years (1891 to 1921) and considering the sexes separately, there is a noteworthy approach to equality between the ratios; but the closeness is not so striking in all the later periods, doubtless because the actual number of suicides in these years of adolescence and post-puberty is so comparatively small: only 8.1 per cent. of the total suicides. Thus, the male ratios in the 15-19 period are 0.3, 0.3, 0.4, 0.3, and in the 20-24 period they are 0.7, 1.0, 1.0, 0.6, the corresponding two sets of female ratios being 0.3, 0.5, 0.4, 0.3, and 0.3, 0.5, 0.5, 0.3. By combining the two quinquennia together into the decennium 15-24, the four Census years show 0.5, 0.6, 0.7 and 0.4 as the suicide ratios per 10,000 males; and 0.3, 0.5, 0.4 and 0.3 as the corresponding ratios for women. Whatever increase the ratios of the later age-periods and of the totals may suggest in the incidence of suicide, it is abundantly clear that there was no increase of it among young people. On the contrary, there was during that period of life a tendency for it to decrease: so slightly, however, that the impression left is that the incidence was stationary. The actual number of suicides during 1929, 61 males and 50 females during the 15-19 period and 128 and 72 respectively during the 20-24 period, cannot be expressed yet in ratios; but, except that there has been a notable fall in the total number of persons at these ages, there is no reason to think that the position is less stationary. Before leaving these two quinquennia, it is of importance, in relation to what we shall find in subsequent periods, to note in the 15-19 period how closely, for all four Census years, the male and female ratios approximate to each other—0.3-0.3, 0.3-0.5, 0.4-0.4, and 0.3-0.3: indeed, with one exception, they are identical. In the next quinquennium, 20-24, they begin to diverge and a male preponderance begins to appear—0.7-0.3, 1.0-0.5, 1.0-0.5, and 0.6-0.3. By merging the two quinquennia into one decennium, for better comparison with the four later decennia, the four pairs of male and female ratios then become—0.5-0.3, 0.6-0.5, 0.7-0.4, and 0.4-0.3: this is a numerical preponderance of male suicides over females of about 1.3 to 1. We shall find that, in the next two decennia, it quickly reached 3 to 1; that thereafter it increases, fairly steadily, until in the last period, 65-and-upwards, it is about 6 or 7 to 1; and that the final average is very closely 3 male suicides to every female suicide.

The Four Decennia 25-34 to 55-64 and the Period 65 and Upwards

Nothing will be gained were each of these five periods taken by itself, and, by considering them together, it is, in fact, easier to emphasize the stability, fixedness and almost rigidity of the ratios from Census to Census, and the tendency, after 45 years of age, for the average male preponderance of 3 to 1 to become still greater. The only noteworthy exceptions to this general statement are in the figures of the 1921 Census, where three ratios, both male and female, in the period 25-34, and the male ratio in the period 35-44, show a distinct drop. Thus, in the 25-34 period, the male ratios were 1.4, 1.5, 1.5 *and 0.9*, those for women being 0.5, 0.5, 0.6 *and 0.4*; in the 35-44 period, those for men were 2.4, 2.4, 2.3 *and 2.0*, whilst those for women were 0.8, 0.8, 0.7 and 0.7. Through the remaining three periods they rise with remarkable regularity, except that in the period 65-and-upwards, where the ratios at the four Census years have reached 4.9, 5.0, 4.5 and 5.1 for men, and 0.7, 0.8, 0.8 and 0.8, the latter, instead of a rise, show a reduction when compared with 1.0, 1.1, 1.1 and 1.2 which were the ratios for women in the immediately preceding 55-64 period.

Proportion of Suicides as to Sex

In both the previous paragraphs reference was made to this matter which has its interest, if only because of the attention it has received in previous inquiries and in all countries. In my set of figures, its uniformity of behaviour, clearly noticeable in each of the four Census years, perhaps is best seen in those for 1901. There it can be seen that in the under-15 period the male and female ratios, as it happens, were equal, 0.01 and 0.01; they began to oscillate in the next two quinquennia, with a tendency for the male ratio to preponderate, 0.6 and 0.5, when the period is looked at as a decennium; in the next two decennia they exhibited exactly the average of 3 to 1, 1.5 and 0.5 in the 25-34 period, and 2.4 and 0.8 in the 35-44 period; in the next decennium the male preponderance, 3.7 and 1.0, began to exceed the average, still more so in the 55-64 period, where the ratios were 4.9 and 1.1; until in the 65-and-upwards period, where they were 5.0 and 0.8, suicides in men outnumbered those in women by rather more than 6 to 1.

Ratios for all Ages

The stability and uniformity of the ratios, as probably was to be expected, is still more marked when they are worked out for the totals irrespectively of age-periods. Thus for the four Census years, the ratios of suicides per 10,000 population are 1.3, 1.5, 1.5 and 1.5 for males, and 0.4, 0.5, 0.5 and 0.5 for females; and, for both sexes together, they are 0.9, 1.0. 1.0 and 1.0. It will be observed, too, that the sex proportion is almost exactly 3 to 1.

The year 1929 is the latest for which the number of suicides has been published. They were 3,480 males and 1,504 females. These numbers can be expressed as ratios upon only an *estimated* population. So calculated, they are 1.8 for males and 0.7 for females, and 1.3 taking both sexes together. If these are reliable, which I am inclined to doubt, they show a distinct and noteworthy rise of about 30 per cent. in the suicide rate, more for women than for men, and they show a departure from the hitherto very stable sex ratio of 3 to 1. It is impossible, until the population at the 1931 Census is available in age-periods, to say more as to the reality or otherwise of this rise in the ratios. Assuming there has been a rise, it is, however, quite possible to suggest something as to its nature. This comes out when the means adopted for committing suicide is considered.

Form or Means of Committing Suicide

These have been analysed for me for each of the four Census years 1891-1921 and for the year 1929; and the figures for each form, separately as to sex, have been set out also in percentages of 100 suicides from all forms. The results are highly instructive; the stability and uniformity of the percentages is so marked as to be startling, were it not that attention has been drawn in previous inquiries to a good many of the points which thus emerge. It is to be noted, however, that while the figures and percentages for the four Census years thus closely correspond, those for the year 1929 contain marked differences, and that the commencement of these departures can be recognized in the two Census years 1911 and 1921.

As has been pointed out often, each method of suicide is favoured by one sex more than the other. It, however, has not, I think, been pointed out how marked is this favouritism; that is, that there is no method used at all extensively which comes at all near to an equal division between the sexes. Although this statement does hold good even with respect to methods of suicide less often resorted to, naturally where the figures and percentages are small the uniformity, which seems to me to be of considerable importance, is not marked. Thus, crushing and the use of firearms to both of which resort is had more by males than females, jumping from high places used more by females, and miscellaneous means account between them for scarcely 16 per cent. of all suicides; and the numbers, I feel, are too small to make it worth while pushing their analysis further. How stable the percentages have been begins to be seen more clearly when regard is had to those by cutting or the use of piercing instruments; during the four Census years the male percentages were 20.5, 18.6, 20.3 and 21.6, those for females being 13.1, 8.8, 13.6 and 11.2; for the year 1929 there was a marked drop in the extent to which this method was used as respects both sexes—16.7 and 7.9.

Until the new method of suicide by the use of coal gas, between the years of 1911 and 1921, came to be frequently employed, drowning was by far the commonest method adopted by women. Thus, during the four Census years, the male percentages for drowning were 18.7, 17.5, 19.0 and 21.2, whilst those for females were 34.0, 34.2, 33.1 and 32.4; for the year 1929 both showed a very marked drop, namely, to 15.7 and 21.9 respectively. Resort to hanging or strangulation is had habitually more by males than females, the two sets of four percentages being 30.9, 29.3, 27.8 and 24.5 for males and 20.2, 17.7, 18.7 and 16.7 for females; a like marked drop to 19.8 and 9.0 respectively being shown for the year 1929.

Suicide by Solid or Liquid Poisons and Corrosive Substances, Including Poisonous Gas

This is the remaining head in the list of means of suicide. Except at tedious length, it is scarcely possible to set the percentages out as has been done for the other forms, owing to their complication by the coming into fashion of the use of coal gas. The figures of my four Census years indicate that suicide by poisoning has been a fairly favourite method throughout the whole of this period, especially by women: the percentage frequency for the two sexes being about 11 for males and round about 25 for females. In 1901 eight men and one woman committed suicide by the use of poisonous gas, 77 men and 28 women in 1911, 233 and 132 respectively in 1921, and as many as 824 males and 461 females in 1929. Expressed in proportions, 23.7 per cent. of all male suicides and 30.7 per cent. of all the female suicides in 1929 were due to the use of poisonous gas, which has become, by far and away, the most common form of suicide in both the sexes. According to my reading of the figures, its use has not affected the occasional resort that is had to crushing, jumping from high places, firearms and to certain rarer methods; but it has considerably reduced the popularity of all other methods, that is of all the commoner methods. The figures further suggest to me that *resort has been had to the use of coal gas by an appreciable—but not at all an alarming—number of persons who, but for its ready availability and the nature of its action, would not have committed suicide.* With reference to alarmist statements as to the number of young folk who use this method, the figures, to my reading of them, are all against the truth of any such belief. In the period 15-19 there were (in 1929) 14 youths and 12 girls who used this method, and, in the period 20-24, 22 males and 21 females; in other words, at least 95 per cent. of the males and 92 per cent. of the females were 25 years and upwards. It is perhaps of interest to add that between 11 and 12 per cent. of the gas suicides in each sex were in the 25-34 decade, 17.1 per cent. of the males and 20.6 per cent. of the females in the next decade, 26.1 per cent. and 30.4 per cent. respectively in the next, 25.4 per cent. and 18.4 per cent. respectively in the period 55-64, and 15.3 per cent. and 12.1 per cent. in the period 65-and-upwards.

The net statistical result of resort to coal gas as a means of suicide appears to me to have raised what was a very stable and uniform suicide rate of 1.5 per 10,000 males and 0.5 per 10,000 females (or 1.0 for both sexes) to 1.8 for males, 0.7 for females (1.3 for both sexes). It may be that when more details of the 1931 Census figures are available, these proportions will need slight correction; but, from certain anticipatory results which have been kindly allowed me from official sources, I believe it will be found that they are very closely correct.

SUMMARY AND CONCLUSIONS

Doubtful Accuracy of former Figures. The suicide rate, with respect either to the completed act or to attempts thereat, did not in the past contain by any

means the whole of these acts, and probably does not entirely do so to-day.

Neither the Suicide rate nor that of Attempts represents the full Incidence of Suicide. However great is the accuracy now of the returns, it is not possible to estimate and to include in them the frequency of the urge to commit suicide which is really the true suicidal incidence. The number who attempt or complete the act is partly determined by external and accidental circumstances, including ease and availability of some new method of committing suicide, especially if that new method is closely allied to the normal process of sleep.

Former rises in Suicide rate: position ultimately stationary. The suicide rate for England and Wales has shown, ever since statistics have been available, a fairly steady, but nevertheless an ultimately diminishing, rate of rise. How far these variations in the rate were due to actual changes in the number of suicides in proportion to the population, or how far they were due to increased accuracy in the returns, it is not possible to say. It is, however, noticeable that, according to the returns in the first three Census years of the present century, a position of great stability had been reached: thus, the number of annual deaths from suicide in each 10,000 of the population living at all ages was, during each of the years 1901, 1911, and 1921, 1.5 for males, 0.5 for females, and 1.0 for both sexes together.[1]

Rise in Suicide rate during the Decade since 1921. There is evidence that, since the 1921 Census and to a slight extent during the previous ten years, there has been a growing tendency to resort to inhalation of coal gas as a means of suicide: with the result that some persons have used this method instead of some other means, and many more have used it who probably would not have taken their lives otherwise. As a consequence, the suicide rate per 10,000 of the population seems to have risen during the year 1923 to 1.8 for males, to 0.7 for females, and to 1.3 for both sexes together. These proportions may need slight correction when fuller details are published of the Census figures for 1931.

Suicide by inhalation of Coal Gas. Poisoning by inhalation of coal gas was the method used with fatal result by 824 males and 461 females in the year 1929. It accounted for 23.7 per cent. of male and for 30.7 per cent. of female suicides during that year. It is now the most frequently used method, the next in frequency being hanging in males and drowning in females. Of those who resorted to this use of coal gas, less than 2 per cent. (14 cases) of the males and less than 3 per cent. (12 cases) of the females were in the 15-19 age-period; and less than 3 per cent. males and less than 5 per cent. females were aged 20-24: in other words, 92 per cent. were 25 years old and upwards. The period of life showing the greatest frequency of its use was 45-54 years of age, in which 26.1 per cent. of the male and as many as 30.4 per cent. of the female suicides by coal gas took place: in no other period was there a higher percentage for either sex. Notwithstanding this use of coal gas and a consequent probable rise in the suicide rate, the latter in no sense constitutes a "problem," nor is the position at all alarming. It is, however, desirable that consideration should be given to the possibility of rendering coal gas less easy to use as a means of suicide.

Doubtful utility of retaining Suicide or its Attempt as a Crime. While it is desirable and necessary that the question whether death was due to suicide or not should remain a matter for legal inquiry, it is very doubtful if any good results from retaining either it or attempted suicide as possibly a crime.

Need for more thorough Study of Suicide as a Medical Subject. Suicide, as a subject, is in need of much greater medical study than it has received, both in this country and internationally. In addition to the advantage to Psychological Medicine which such study would afford, it probably would provide the best means of determining how to prevent the occurrence of a considerable number of cases that now take place.

Help which Coroners and Magistrates could give. Coroners and Magistrates could do much both to direct the subject of suicide into proper medical channels of inquiry; and, by such action on their part and by directions which Magistrates may find themselves in a position to give, much could be done to stimulate the provision of out-patient treatment of mental illness and of nerve clinics, as contemplated by the Mental Treatment Act. It may be desirable to consider how Coroners and Magistrates can be approached upon the matter.

[1] This general statement and these proportions tally fairly closely with those summarised in *Elements of Vital Statistics*, by Sir Arthur Newsholme, 1923 Ed., pp. 380-82, in which particulars are cited from Part III of the Supplement to the Twenty-fifth Annual Report of the Registrar General (1901-10). His proportions per million living at all ages were calculated upon a "standardised" population.

THE PSYCHOLOGY OF SUICIDE*

BY

H. CRICHTON-MILLER, M.A., M.D.

HONORARY DIRECTOR OF THE TAVISTOCK SQUARE CLINIC

Suicide is man's great retreat from life. He has recourse to it when he feels no longer able to endure suffering in the present or pain in the future. It is therefore a failure of adaptation and constitutes a final regression from reality. The motives underlying suicidal acts are numerous and complex. It is impossible to ascertain them with any degree of certainty unless we are intimately acquainted with the patient's psychic life. It is certain that evidence given and conclusions reached in Coroners' courts can be regarded as adequate only in a minority of cases. The importance of social influences can easily be exaggerated, although such influences are frequently operative. It will be convenient to group the motives of the suicide under three headings:—

(1) Physical pain, including frustration of instinctive demands.
(2) Social sufferings and fears.
(3) Doubts and dreads pertaining to the hereafter.

PAIN AND FRUSTRATION

In the first group we have the suicides due to physical pain. It is commonly agreed that this causes far fewer suicides than one would expect. Halbwach places it ninth in his list of twelve major causes. It is also noteworthy that acute pain does not seem to drive men to self-destruction as frequently as some of the gross discomforts. The pain of trigeminal neuralgia is said to be accountable for a few cases, but it is probable that the incessant discomfort of tinnitus aurium is a more prolific cause. Still more noteworthy is the fact, which is not likely to be contested, that men commit suicide more frequently on account of anticipated pain than actual suffering, however acute. I imagine that few women have committed suicide when a malignant tumour of the breast was diagnosed, yet there are an appreciable number, I believe, who when they observe a nodule in the breast are so terrified that it will prove to be cancer that they take their lives. It is difficult to obtain any data about war cases, but my impression is that very few wounded men took their lives, however acute their suffering on the battlefield. On the other hand, it is quite certain that of the unwounded who committed suicide many did so from dread of a painful death.

We are probably justified in concluding, at any rate for civilised man, that he is more capable of adjusting to physical pain than to anticipatory dread of it. And this

* Read in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Eastbourne, 1931.