

action, and I could not help seeing in some instances of morbid mental states evidence that the idea was not altogether wild.

One of the dangers of the present time is that in consequence of physical discoveries, what have been looked upon as certainties no longer hold that position. I have already spoken incidentally of this, but now I have to say that what twenty years ago or less would have been laughed at is accepted as at least worthy of study. Though telepathy and spiritualism are outside our province, unless they are considered from the morbid side, yet hypnotism and suggestion and psychical analysis have taken very important positions, and are doubtless associated with the rapidly developing science of experimental psychology. We find in the last, the comparatively new science, most attractive work, and though I find the physician of to-day prone to ask, *Cui bono?* I can only reply, we must "wait and see"; that we are prepared to follow truth where it leads, and that a dim light is better than none in such darkness as the realms of life and consciousness.

And now, Gentlemen, having rambled over a very wide field, I feel that I must leave it for you to cultivate. It is not forest or virgin soil, but it is productive, and earnest work will have its reward.

In concluding I would say that, like Moses, I view a land of promise which I shall not live long enough to enter, yet, like him, I watch the battle, and as when Moses's hands were supported by Aaron and Hur, Israel prevailed, so I feel that, supported by my two Vice-Presidents, my feeble efforts will be certain of some success.

(¹) Kerner's *Natural History of Plants*.

Remarks on Death Certification and Registration.

By SIDNEY COUPLAND, M.D., F.R.C.P., Commissioner in Lunacy.

I FEEL that some apology is needed from me for venturing to introduce for your consideration a subject which, however important from the standpoint of the national health, bears but little relation to the deeper scientific problems usually discussed at the meetings of this Association. I can only urge in excuse for my temerity the desirability of calling attention to the

changes recently introduced in the registration of deaths with the object of obtaining greater uniformity in tabulation and consequently greater accuracy in vital statistics. The matter concerns every registered medical practitioner, whose statutory duty it is to furnish the information on which the Registrar-General builds up his instructive tables, and all must appreciate the endeavour to secure the object referred to. In asylums for the insane, where the death-rate is relatively very high, there is ample opportunity for supplying precise information, especially as in three out of four cases the cause of death is verified by *post-mortem* examination, thereby enhancing the reliability of the returns.

To Dr. William Farr—rightly regarded as the founder of vital statistics—in his capacity of Superintendent of Statistics at the General Register Office, established in 1838, fell the task of compiling a list of fatal diseases, for the purpose of tabulating the deaths annually registered. In the first of the long series of letters which he annually addressed to the Registrar-General during his forty years' tenure of office, he discusses the question of the best form of nomenclature and classification applicable to the accurate registration of the causes of death, and gives reasons for the list he had framed. Its terminology reads strangely now. Some of the "diseases" have disappeared from the nosology; several not there recorded now take an important place; whilst many terms, designating symptoms rather than morbid conditions, are only to be found in the lengthy catalogue of "undesirable terms," compiled by the present holder of Dr. Farr's office, Dr. Stevenson, a list which should be at the service of everyone who signs a death certificate. In Farr's list there were three main divisions: (1) Epidemic, endemic, and contagious diseases. (2) Sporadic diseases, subdivided according to their anatomical sites. (3) Deaths by violence. The final group in the second division under the heading, "Diseases of uncertain site," is a strange medley, embracing *inter alia* hæmorrhage, dropsy, gangrene, cancer, gout, intemperance, and atrophy. Three years later Dr. Farr thoroughly revised this list, and expounded his views on a statistical nosology in a valuable essay. The classification he then arrived at may be said to have formed, to some extent, the basis of the first edition of the Nomenclature of Diseases in 1869, issued by the Royal College of Physicians,

which has rendered a great service by this publication and its periodical revision in order to keep abreast of advancing knowledge. In 1856, as the outcome of a statistical congress at Geneva, Dr. Farr, in conjunction with Dr. Marc D'Espine, prepared a report upon the nomenclature and statistical classification of diseases, with the object, if possible, of establishing an international system, a scheme which is now at length about to be realised. The plan propounded in that report was introduced in the abstract of the causes of death for 1858, and continued there until 1880, being in some years amplified by a supplementary list of diseases of lesser prevalence. After 1869 Dr. Farr also published an additional table in which the death causes were classified on the basis of the College Nomenclature.

Dr. W. Ogle, on succeeding to the office vacated by Dr. Farr, introduced a new plan of classification of the causes of death, which was first used for 1881. Whilst admitting that the college nomenclature would be the natural one to adopt, as it was indeed in general outline, he pointed out that whereas the aims of the college in framing its lists were mainly pathological, those of the General Register Office should be as far as possible ætiological. Moreover, the need for continuity precluded the adoption of too marked a change in details.

After twenty years the list of causes of death underwent another revision, and from 1901 to 1910 the list employed has been that introduced by Dr. J. Tatham, who dispensed with the artificial classes into which general diseases had hitherto been arranged. It is interesting to note that Dr. Ogle, writing in 1883, says: "Allowance has to be made for the greater precision in diagnosis which the advance of medical science brings about, and which causes a constant increase in the number of deaths ascribed to definite causes at the expense of deaths of which the causes are indefinitely described. Under these circumstances it may be laid down as a general rule that the serial comparison of mortality from any specified cause, in successive years, is but of little value, unless the particular disease concerning which the investigation is made be some well-marked form and such as can be readily recognised by the ordinary practitioner, or unless the inquiry relate, not to some one special disease, but to some large natural group of diseases taken together, such as diseases of the nervous system, or

diseases of the respiratory organs." (*Forty-fourth Report of Registrar-General*, p. xix.)

Dr. Tatham, in 1903, on the other hand, writes: "It must be borne in mind, however, that what is essentially requisite in statistical tables intended for public health purposes is that they should furnish comparable details for current and past years—not concerning arbitrary groups of disease, but concerning individual diseases considered as causes of death, for by such means it is that the actual influence of sanitary effort on human health and longevity may be more accurately ascertained and measured." . . . "The classified list of diseases hitherto in use having thus been replaced by a simple enumeration of individual causes of death, it is confidently hoped that any modifications which may hereafter be required in the national records of mortality will not seriously affect the comparability of facts in a series of years. From the nature of the case students of vital statistics will assuredly require to classify causes of death according to the special requirements of a given investigation." (*Sixty-fourth Report of Registrar-General*, p. xxxvii.)

The modifications introduced by Dr. Tatham included the transference of certain affections which modern inquiry had proved to be due to microbic agencies from the class of Local to that of General diseases. Such are pneumonia, empyema, infective endocarditis, tetanus. For the first time, too, in the General Register of Deaths, those due to general paralysis were separated from the general heading of "Insanity." Apoplexy and cerebral hæmorrhage were transferred from the category of diseases of the nervous system to that of diseases of blood-vessels. Appendicitis was given a place apart from enteritis, hæmophilia detached from purpura, diarrhœa from dysentery, and sarcoma separated from carcinoma, the term "cancer" being retained for all malignant disease not so distinguished.

The latest step in revision of our official statistical nosology has been taken in order to bring the tabulation of death causes at the General Register Office into harmony with those adopted by other governments. It consists in the acceptance for this country of a list of causes of death drawn up by an International Commission, as revised at its second meeting in Paris in 1909. This "international" list is, the Registrar-

General informs us in his last published report, to be used for the forthcoming tables for 1911, and will coincide with a useful reform in regard to the areas of registration. With the latter we here have no such direct concern as with the international list, of which detailed particulars are given in a manual prepared by Dr. Stevenson. The manual also contains valuable comments on the certification of deaths, with an account of the methods adopted at the General Register Office, to ensure uniformity in registration. The list contains 189 headings arranged in fourteen groups, but, in order to "maintain comparability with past English records," as many as sixty-five of the principal headings have been subdivided into 188 divisions, so that the complete list contains 312 "assigned causes" as compared with 193 in the list which has been used during the past decade. A table is given in the "manual" which shows how the diseases named in the previous list have been distributed and expanded in the new list. Convenience in tabulation for registration purposes doubtless explains many of these differences, emphasising the distinction between a "scientific" and a "statistical" nosology. I must refer you to the manual itself for details, merely noting that one principal heading is "General paralysis of the insane," and the next "Other forms of mental alienation," whilst idiocy, imbecility and cretinism fall under "Other diseases of the nervous system," and "Senile dementia" and "Senile decay" form the two sub-groups of the division—"Old age." The manual, with carefully compiled enumeration of the various morbid conditions and their synonyms falling under each of the scheduled "causes" and its exhaustive index, should be invaluable to anyone who has to prepare from mortality records a list of the causes of death in accordance with the scheme now in force at Somerset House.

Convinced of the utility of adopting for institutions for the insane a synopsis of death-causes in accordance with the tables in the Registrar-General's Annual Report, it is intended that the new departure in general registration shall be followed in our lunacy statistics. This will entail a re-casting of our collated returns for the year 1911, already published, which can be readily effected by reference to the comparative lists given in the manual, whilst an extended form of the schedule issued to the medical officers of institutions for the return of the

deaths for the current year is being drawn up on the lines of the international list. In this schedule certain diseases named in the list will be omitted as practically never occurring amongst the insane, and a few additional ones specified, their comparative frequency in association with insanity seeming to justify their separate mention. A draft copy of this schedule is now before you, and any suggestions for its improvement will be welcomed.

The attention of the Commissioners in Lunacy having been drawn by the Registrar-General to the need (for registration purposes), in the cases of persons dying in public institutions, of recording the places of residence prior to their admission, it became necessary to alter Form 21 of the Rules of the Commissioners accordingly, for which Parliamentary sanction is necessary. We have deemed it desirable to take advantage of this opportunity to also revise the form in its essential particular. This, as will be seen from the draft which has been circulated, consists in bringing the notice of the cause of death into harmony with that of the ordinary death certificate, the form and wording of which have been simply transferred to the notice. It entails the differentiation of the primary (or principal) and secondary (or contributory) cause, the former being, it is understood, that which is selected for the purposes of the Registrar-General's List of Causes of Death as well as for the table in the Annual Report of the Commissioners in Lunacy. This distinction appeared, I believe, on the first forms of certificate issued in 1845, and although the terms were not defined, one learns from the interesting account given by Dr. Stevenson in the manual that the practitioner was instructed to "write the causes of death in the order of their appearance, and not in the presumed order of their importance," an instruction which was retained until as recently as 1902. A too strict adherence to this interpretation of the terms—not always followed, however—came to entail much work at the General Register Office to secure uniformity, and to determine which of the causes assigned in the certificate could be reasonably regarded as the most important factor. With this object a code of rules was drawn up to govern the selection of one out of two assigned causes. A like code was compiled by the International Commission in 1903. Both of these sets of rules are now published for the first time in the manual, and

will be found very instructive as well as helpful in certification. No doubt eventually international uniformity of practice in this important detail of registration will be attained, just as there is now in the matter of nomenclature. So far as we are individually concerned as writers of death certificates we must not interpret the term "primary" as indicative of the disease which appeared first in time, unless, as indeed not seldom occurs, it also happens to be that which was the chief cause of death. Dr. Stevenson tells us that there has been a growing tendency amongst practitioners to give the more correct rendering of the term as "principal" rather than primary in point of time. The wider the recognition of this the less the necessity for revision of certificates at the central office. As assisting to this end the certifying practitioner has now before him an authoritative definition of the terms. The wording of this definition, settled after consultation with the Royal College of Physicians, is as follows: "By 'primary cause of death' is meant (in the case of deaths from disease) the disease present at the time of death, which initiated the train of events leading thereto, and not a mere secondary, contributory or immediate cause, or a terminal condition or mode of death." These words are inserted in the death certificate, where it is also pointed out that a mere terminal state is not to be entered as a secondary cause.

Clear and explicit as this definition is it requires to be liberally interpreted. Thus in a foot-note to the passage in the "Suggestions to Medical Practitioners," from which I have quoted, it is rightly held that acute specific diseases, if of recent occurrence, are to be considered the primary cause of death, even though the actual disease, as tested by power of infection, be no longer present at the time of death—*e.g.*, measles (primary), five weeks; broncho-pneumonia (secondary), ten days. On the other hand, when a long interval has elapsed between the acute specific and the fatal effects of its sequela, the disease which really initiated the train of events leading to death will cease to be regarded as the primary cause, and may even come to be ignored as secondary, being supplanted by another link in a long chain. An adult succumbs to the effects of cardiac dilatation, secondary to mitral disease which originated in endocarditis acquired in an attack of acute rheumatism or scarlet fever in early life. Or, similarly, a man

dies from an abscess of the brain or from meningitis originating in mastoid disease directly connected with the otitis which followed on the scarlet fever he suffered in youth. For purposes of registration I presume the selection of the primary cause would fall in the one case on "valvular disease of the heart," and in the other on "mastoid disease"; but the pathological importance of the secondary causes cannot be disregarded. Similarly in more chronic affections, to select as the primary cause the arterial sclerosis upon which the eventual death from chronic Bright's disease or cerebral hæmorrhage depends may be according to rule, as it is in order of time, but would effectually preclude the acquisition of precise information upon important morbid conditions. The aim of registration being to ensure uniformity of record in order to enable accurate comparisons to be made between the mortality in different countries and at different periods in the same country, the more closely one follows the authorised definitions the more likely is such accuracy to be attained.

The very fact that there is, and cannot fail to be, differences of opinion as to the precise significance attached to the term "primary" in estimating the relative importance of one or other associated morbid states in causing death makes it very necessary not to lose sight of those conditions which are noted as "secondary," since they find no place in statistics which deal with one cause only. The record of secondary causes is as valuable as that of the primary; and Dr. Stevenson states that it is intended to publish from time to time subsidiary tables to include both groups, where the secondary cause is of sufficient importance to warrant its tabulation. In our own more limited statistics it is proposed to ask for a record in another column of the total number of instances in which a disease is recorded as secondary, a plan already adopted in the tables framed by this Association. In that way one may hope to arrive at a truer conception of the relative frequency of each morbid condition that shares in the fatal issue than is possible when only one cause is selected for comparison. We shall still have means for comparing the number of deaths from principal causes at different ages; but this supplemental information will enable us to learn something of the incidence of disease at all ages.

In Dr. Farr's original table of fatal diseases, the headings

occur of "Insanity" (monomania, dementia and idiocy), and the abstract of the causes of death registered in England from July 1st to December 31st, 1837, the period covered by the First Annual Report, shows that the deaths of 147 males and 138 females were ascribed to "insanity." A note supplies the information that a case of insanity in a female æt. 48 was caused by a polypus in the womb. The table in the second report dealing with the deaths in 1838 assigns the deaths of 178 males and 189 females to this condition, there being, as stated in a note included under the same head, "four deaths from grief, one from passion, and ten from fright." "Insanity" has remained in the list of assigned causes of death to the present day, and the last issued report gives for 1910 a total of 940 male and 1151 female deaths from this cause, as well as 48 deaths from puerperal mania and 2213 from general paralysis of the insane, a condition which was included under the heading "Insanity" until 1901. It is not easy to explain the occurrence of so many certificates from which it could be possible to select "insanity" as the principal cause of death in the amount shown by these official figures. For in the same year (1910) in all institutions for the insane the total ascribed to "exhaustion" from mania and melancholia was 186, or about 9 per cent. of the larger figure: whilst the yearly average of such deaths for the seven years 1904-10 was 210, and that for the whole country 2111, or ten times the former. It is further noteworthy that whereas the yearly figures in the former group show a tendency to dwindle, possibly owing to the ascertainment of some definite physical disease to which the death may reasonably be assigned, those in the latter rise mostly from year to year. During the same seven years the total registered deaths from puerperal mania was 413, the number in asylums being twenty-five. On the other hand, there were, in 1910, in asylums, 1691 deaths from general paralysis, which may be compared with the total return for the country of 2213, a difference far more explicable than the "insanity" figures. It is improbable that every one of the 1,905 deaths assigned to non-puerperal insanity in 1910 in England and Wales, over and above those so assigned amongst asylum inmates, should have referred to persons outside these institutions. Of that number I find that 56 *per cent.* were of the ages sixty-five and upwards, and even if we were to subtract

all the asylum deaths returned as from "old age" in these periods, on the assumption that such deaths in such environment were to be interpreted as "senile dementia" (as many doubtless were), there would still remain 250 to be accounted for. Perhaps these would be furnished from among workhouse inmates. But where are we to find the 44 *per cent.* who were below sixty-five years of age? Dr. Farr, who, as I have said, placed "insanity" in his list of "fatal diseases" (not unwarrantably, since the term comprised general paralysis) wrote in his first report: "The insane who die in lunatic asylums have often been registered improperly under secondary diseases such as apoplexy or diarrhœa." If we are unable to endorse this dictum it is because in the majority of the insane it is hardly possible to attribute death to insanity *per se*.

This is a point which I hope will be taken up in discussion, namely, to what extent may death be primarily ascribed to the mental disorder. I say "primarily," because in a sense I presume we may regard insanity as a contributory cause. Mind and body are too firmly linked to permit of doubt as to their interaction in disease, and the notoriously high death-rate of the insane from certain physical diseases may, when not obviously due to environment, reasonably be held to indicate amongst them some undue liability to bodily affections, or, at any rate, an inherent lack of vital resistance possibly connected with, if not dependent on, the "insane diathesis." One is bound to admit that there are cases of recent mania or melancholia, and some rarer conditions of insanity, where death occurs from what, from lack of knowledge, can only be described as "exhaustion," "heart-failure," and the like, when a *post-mortem* examination has failed to reveal the presence of any well-defined complication, such as pneumonia, that actually determined the result. But for the rest, the great majority,—always excluding general paralysis,—the insanity, if considered to be a factor at all, can only be a contributory and mostly a remote contributory cause. A few years ago Dr. Tatham, then superintendent of statistics at the General Register Office, expressed a desire that each notice of death should state the type of mental disorder from which the patient was suffering, and to a certain extent that information was added. It has not been thought worth while to introduce a special heading for this purpose in the newly revised Form 21; but if, in the

yearly return, such a summary were supplied, it might be utilised for the compilation of a table to contrast with that which deals with the forms of insanity on admission to care. It would be certain to show a vast preponderance of dementia, and it would be interesting to learn whether much value could be assigned to it.

As to general paralysis of the insane, which figures so largely as a principal cause of death in our returns, accounting for more than 17 *per cent.* of the deaths in asylums, it is to be noted that although its return as the primary cause of death may mostly be justified, according to the definition of the latter, it does clearly sometimes rank as secondary, when complicated by dysentery, or phthisis, acute pneumonia or other intercurrent diseases. The same applies to epilepsy and diseases of brain and cord, serving to emphasise the importance of tabulation of secondary as well as of primary causes, if we wish for accurate knowledge of the prevalence of such affections.

I had hoped to have entered somewhat fully into the subject of the comparative mortality of the insane and the general population, which has been the main object in having our returns made on the same lines as those in vogue at Somerset House. But lack of time to do full justice to the subject prevents me from doing little else now than touching its fringe. However, as the matter was treated at some length in the *Sixty-fifth Report of the Commissioners in Lunacy*, I have less compunction in limiting the scope of my present remarks. I would point out, however, that no small part of the exceptionally high mortality in lunatic asylums is to be attributed to the enfeebled and disordered physical state of many of the patients on admission, whose insanity is often more or less directly connected with their bodily ill-health. The high death-rates which obtain at every age are therefore by no means necessarily connected with asylum conditions of life, except in so far as these conduce to the spread of contagious disorders. Indeed, the longevity of inmates is a standing testimony against such an hypothesis, and there is no doubt that they are protected from certain risks to health and life to which the rest of us are exposed. A study of asylum statistics which I made a few years ago enables me to affirm that for every 100 persons admitted, 10 die in their first year of residence, and 8 in their

second year, and this out of a total of 36 who die within a period of residence extending over twenty years.

Diseases of the nervous system necessarily bulk largely in the list of death causes amongst the insane, owing chiefly to the number who are the subjects of general paralysis and epilepsy. In 1910 there were in institutions for the insane as many as 291 such deaths out of a total of 1,000 for all causes at ages 15 years and upwards, whilst in the rest of England and Wales the proportion was only 48 per 1,000 in the same age-period.

Next in importance as contributing to an asylum death-rate is *pulmonary tuberculosis*, which (for the same ages) in that year accounted for 140 out of 1,000 deaths, or 138 if the means of the five years, 1907–11, be taken. This contrasts with a proportion of 104 per 1,000 in the rest of the community. On the other hand, low down on the list of fatal diseases amongst insane patients is *cancer*; for dealing with persons at ages 25 and upwards we find the proportion of deaths from malignant disease in 1910 in institutions was 33 per 1,000, instead of 114 for the rest of the population.

When, however, we compare the incidence of these two diseases—phthisis and cancer—on the estimated numbers *living* in the two groups, we find in the one case a still greater disparity, and in the other an equally striking approximation of the respective rates. Thus, per 10,000 living, the asylum deaths from phthisis were 127, those of persons outside asylums only 13; but in regard to cancer the like ratio for the former was 29, for the latter 20, which would seem to show that in spite of its relative infrequency as a cause of death, the incidence of cancer is not really below the rate in the general community. In other words, if the phthisis death-rate had been the same amongst the insane as it was in the population at large the number of deaths from this cause would have been 144 instead of 1,359, whilst on the same hypothesis the cancer deaths should have been 275 instead of 284—the yearly average of the five years, 1907–11.

Cancer, then, is clearly not favoured in its occurrence by agencies similar or allied to those which favour tuberculosis; and whilst seeking an explanation for the proclivity of the insane to the latter affection, we ought also to endeavour to ascertain the reason why cancer is not more prevalent than it apparently is.

There is need for circumspection in statistically comparing two communities of such unequal numerical strength. The insane in institutions on December 31st, 1910, numbered 106,736 at ages 15 and upwards, and the estimated number of persons (outside asylums) living at those ages in the middle of the same year was 24,084,078. Any conclusions drawn from comparisons between the two groups must therefore be guarded and undogmatic, as pointing the direction for inquiry rather than accepting the facts elicited as being the ultimate truth.

NOTE.

It may be useful to record by way of addendum to the foregoing paper the statistical data on which certain statements therein were founded.

I.—*Comparison of statistics relating to deaths assigned to certain forms of insanity given (a) in the Abstract of Causes of Death in England and Wales published in the Sixty-seventh to Seventy-third Annual Reports of the Registrar-General, and (b) in the table dealing with the deaths in institutions for the insane given in the Fifty-ninth to Sixty-fifth Reports of the Commissioners in Lunacy.*

Year.	England and Wales.							Institutions for insane.						
	General paralysis.			Insanity (not puerperal).			Puerperal mania.	General paralysis.			Exhaustion from mania and melancholia.			Puerperal mania.
	M.	F.	T.	M.	F.	T.	F.	M.	F.	T.	M.	F.	T.	F.
1904	1802	578	2380	866	1060	1926	62	1311	314	1625	89	154	243	5
1905	1738	549	2287	888	1181	2069	66	1313	331	1644	106	139	245	5
1906	1772	568	2340	952	1200	2152	68	1294	324	1618	94	145	239	5
1907	1775	557	2332	960	1249	2209	70	1305	363	1668	80	135	215	6
1908	1713	504	2217	941	1227	2168	57	1328	307	1635	72	111	183	1
1909	1817	546	2363	995	1176	2171	42	1361	320	1681	74	87	161	—
1910	1723	490	2213	940	1151	2091	48	1375	316	1691	85	101	186	3

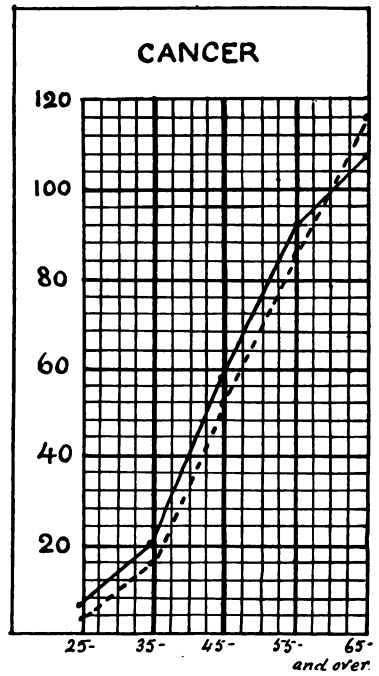
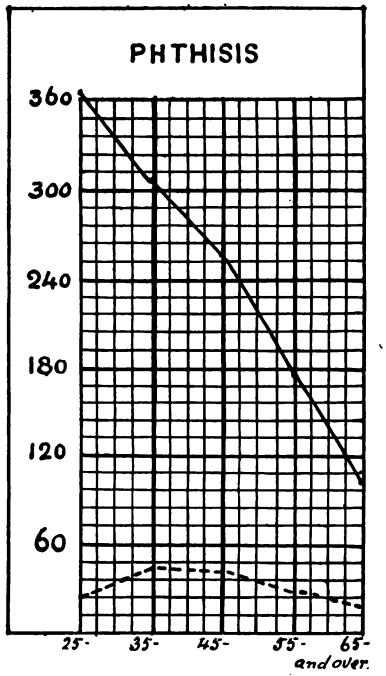
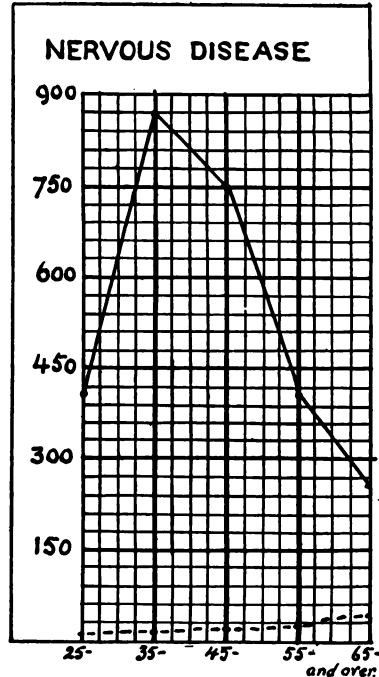
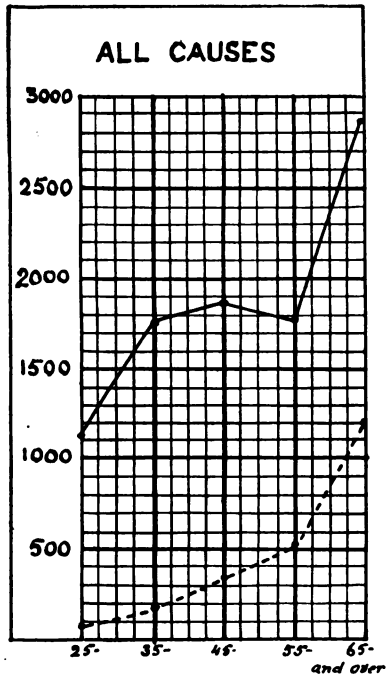
II.—*Comparison of deaths occurring in institutions for the insane with those in the rest of population of England and Wales. The figures for the population of the former are those returned on December 31st, 1910; of the latter the estimate for the middle of the year 1910. The number of deaths in the institutions is the yearly average for the five years 1907–11; those given for the rest of the community are based on the returns for 1910. In each series the figures are limited to fifteen years and upwards, and in the case of "Cancer" to twenty-five years and upwards.*

Population.

At ages	England and Wales (excluding asylums).			Institutions for insane.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
15–	1,768,113	1,801,857	3,569,970	1,362	1,008	2,370
20–	1,618,403	1,811,104	3,429,597	2,605	2,386	4,991
25–	2,727,347	3,039,054	5,766,401	9,058	8,467	17,525
35–	2,114,871	2,258,632	4,373,503	11,708	12,318	24,026
45–	1,525,804	1,643,484	3,169,288	11,069	13,447	24,516
55–	991,138	1,128,251	2,119,389	8,280	10,826	19,106
65 and upwards	722,180	933,840	1,656,020	5,494	8,708	14,202
	11,467,856	12,616,222	24,084,078	49,576	57,160	106,736

Deaths—all Causes.

15–	4442	4317	8759	82	62	144
20–	5452	5061	10513	155	130	285
25–	12616	12258	24874	613	517	1130
35–	17115	15415	32530	1024	728	1752
45–	23225	19164	42389	1000	863	1863
55–	30574	25929	56503	922	877	1799
65 and upwards	65158	74969	140127	1311	1556	2867
	158582	157113	315695	5107	4733	9840



Number of deaths at different age-periods, from twenty-five upwards, in institutions for insane. N.B.—The continuous curve indicates actual numbers—yearly average on five years, 1907-11; the broken curve—hypothetical numbers, if the death-rates at age-periods had been identical with those obtaining in the rest of the population.

To illustrate Dr. SIDNEY COUPLAND'S paper.

Deaths—Diseases of Nervous System.

15-	268	228	496	29	16	45
20-	229	237	466	50	32	82
25-	425	438	863	272	141	413
35-	734	743	1477	649	221	870
45-	1075	870	1995	530	221	751
55-	1355	1086	2441	259	154	413
65 and upwards	2607	2495	5102	129	136	265
	6693	6097	12790	1918	921	2839

Deaths—Phthisis (Pulmonary Tuberculosis).

15-	1080	1532	2612	25	20	45
20-	1977	1801	3778	59	48	107
25-	4432	3800	8232	183	182	365
35-	4483	3016	7499	137	172	309
45-	3657	1816	5473	115	142	257
55-	2172	1075	3247	87	89	176
65 and upwards	925	596	1521	50	50	100
	18726	13636	32362	656	703	1359

Deaths—Cancer.

25-	335	539	874	2	4	6
35-	994	2017	3011	7	13	20
45-	2757	4037	6794	21	37	58
55-	4336	5251	9587	41	51	92
65 and upwards	6022	7515	13537	45	63	108
	14444	19359	33803	116	168	284

*Proportion per 1,000 Deaths from all Causes.
Nervous Diseases.*

15-	60	53	57	354	258	313
20-	42	47	44	323	246	298
25-	34	36	35	444	273	366
35-	43	48	45	634	304	497
45-	46	45	47	530	256	403
55-	44	42	43	281	176	230
65 and upwards	40	32	36	98	87	92
	42	38	34	336	195	288

Phthisis.

15-	243	353	298	305	323	313
20-	363	356	359	380	369	375
25-	351	310	331	299	352	323
35-	262	196	231	134	236	176
45-	158	95	129	115	165	138
55-	71	42	57	94	101	98
65 and upwards	14	8	11	38	32	35
	118	87	103	128	148	138

Cancer.

25-	27	44	34	3	7	5
35-	59	131	93	7	18	12
45-	119	210	161	21	45	32
55-	141	203	170	44	63	53
65 and upwards	92	100	97	35	43	39
	91	123	107	24	38	31

Mortality per 10,000 Living—all Causes.

15-	25	24	24	602	615	608
20-	34	28	31	595	545	571
25-	46	40	43	680	611	645
35-	81	68	74	875	591	729
45-	152	117	134	903	642	760
55-	309	230	267	1114	810	942
65 and upwards	902	803	846	2386	1787	2019
	138	124	131	1030	828	922

Nervous Diseases.

15-	2	1	1	213	159	189
20-	1	1	1	192	134	164
25-	2	1	2	300	167	236
35-	3	3	3	554	179	362
45-	7	5	6	479	164	306
55-	14	10	12	313	142	216
65 and upwards	36	27	31	235	157	187
	6	5	5	347	161	266

Phthisis.

15-	6	9	7	184	198	190
20-	12	10	11	227	201	214
25-	16	12	14	202	215	208
35-	21	13	17	117	140	129
45-	24	11	17	104	106	105
55-	22	9	15	105	82	92
65 and upwards	13	6	10	91	57	70
	16	11	13	132	123	127

Cancer.

25-	1	2	2	2	5	3
35-	5	9	7	6	11	8
45-	18	25	21	19	28	24
55-	44	47	45	50	47	48
65 and upwards	83	81	82	82	72	76
	18	22	20	25	31	29

III.—The above figures permit of a contrast between the actual number of deaths occurring in institutions for the insane at different periods of life, and the hypothetical number which would be recorded were the mortality rates identical with those obtaining in the general population. Such a comparison is made in the subjoined table for persons at ages twenty-five years and upwards, the actual numbers being given in column (a), the hypothetical in column (b). See annexed diagrams.

At ages.	All causes.		Nervous diseases.		Phthisis.		Cancer.	
	(a).	(b).	(a).	(b).	(a).	(b).	(a).	(b).
25-	1130	75	413	3	365	25	6	3
35-	1752	178	870	7	309	41	20	16
45-	1863	328	751	15	257	42	58	53
55-	1799	510	413	23	176	29	92	86
65 and upwards	2867	1201	265	44	100	14	108	116
Total	9411	2292	2712	92	1207	151	284	275

DISCUSSION.

At the Quarterly Meeting held in London on November 26th, 1912.

The PRESIDENT stated that he was sure he was interpreting the views of members when he said they were very much indebted to Dr. Coupland for having come to the meeting to discuss a subject which was of such great importance to them. His presence there, as representing the Commissioners in Lunacy, exhibited that spirit of consideration for the views of members of the Association which had done more than anything else—and was certain to do more in the future—to bring about harmonious and smooth working in the task which both the Commissioners and members had in hand and had at heart. He thought that the author had shown a very cogent reason indeed why such a change should be brought about in the form of return, the main suggestion being that the causes of death should be returned under the headings "primary" and "secondary." He believed many had in the past made their returns very much on that basis. There were two other points with regard to this proposed draft. One was, that, at present, asylum authorities were asked to return the name of the brain disease from which the patient suffered. As a matter of fact, he believed the name of the brain disease was not given, but rather the form of mental disorder. They hesitated to go beyond that, and definitely put down, for instance, the name of the brain disease which characterised dementia præcox. He suggested that if there was to be a re-casted form, it would be well to provide for a return of the mental disorder from which the patient suffered. The second point was, that in the form required to be sent to the Registrar of Deaths the words had been introduced, "I hereby certify the particulars contained in the above statement to be true," and he suggested it would be well to have those words on every form sent in, and not only on the form sent to the Registrar of Deaths. Those were points which occurred to him, and he hoped the meeting would accept Dr. Coupland's invitation to consider and discuss the various matters raised, bringing forward any views entertained so that the opinions of members might be ascertained.

Dr. C. A. MERCIER remarked that the subject which Dr. Coupland had brought forward for discussion was an exceedingly difficult one—much more difficult than appeared on the face of it. And it was so for the reason that no two people were agreed upon what was meant by a cause. He recently had occasion to discuss the matter in one of the magazines, in opposition to Professor Karl Pearson, who denied that there were such things as cause or effect in anything. In that, however, he (the speaker) did not agree. He believed there was such a sequence as cause and effect, or, possibly, simultaneous occurrence. But he took considerable objection to the terms used in this schedule now brought forward, *vis.*, the terms "primary" and "secondary," "principal" and "contributory." Of course "primary" and "secondary" were intended to be used, as Dr. Coupland pointed out, in their proper signification, namely, as first in importance and secondary in importance respectively. He remembered another controversy which he lately had because somebody found fault with him for using the term "primarily" instead of "firstly." By "primarily" he meant first in importance; first meant first in order of time. Then, in the case in hand, one had to ask, "Important in what respect?" And again, in regard to "primarily" and "contributory," "In what respect?" Therein lay the whole difficulty of the matter. Taking, as an instance, the case of the man who died as a result of the rupture of an aneurysm of the aorta; he fell down dead because of the rupture. Was the aneurysm the principal cause of the death, or was it the contributory cause? Or was the rupture the principal cause of the death, and the aneurysm the contributory one? Again, the aneurysm was due to syphilitic affection of the walls of the aorta. Was the syphilis, then, the principal cause? Or was it merely a contributory cause? In such a case there were three factors: the syphilis, the aneurysm, and the rupture of the aneurysm. Which of them was primary, which secondary? and what about the third? The problem was a very difficult one indeed. On his way to the meeting, while turning the matter over in his mind, he wondered whether it would not be better to substitute for "primary" and "secondary," or for "principal" and "contributory," the terms "remote" and "immediate." Those terms, again, would bring in their own special difficulties. But behind all that

there was a further difficulty. When one spoke about a cause being principal or contributory, one had to ask, "In what respect?" From what standpoint should it be regarded? In all the antecedents of an event, going back indefinitely to infinity, if one chose, one could regard every one of those antecedents as a cause. For a cause had been defined as a necessary condition, without which the thing would not have occurred. He believed that definition had been universally accepted. According to it, one cause of a man's death was that he had been born, because if he had not been born he would not have died: it was an indispensable condition. He stated that extreme case in order to show how very difficult it was to fix upon any one event as the cause of death. One would not speak of a man's birth as being one of the causes of his death, and yet, in the strict sense of the term, it was. Why did they choose one particular thing, such as the bursting of the aneurysm, or the occurrence of the aneurysm, or the contracting of syphilis, or the disease of the artery, and call this the cause of the death, rather than the patient being born? He took it that the reason it was called the cause was because, of all the innumerable ones, it was the cause in which the certifier was interested. In making out this table, different people would be interested in different aspects of the subject; therefore one would never get two people to fill up one of these forms in precisely the same way; or, at all events, it would happen but seldom. There would be frequent diversity, and that was the difficulty about statistics in matters of this kind. It had been said that anything could be proved by means of statistics, and they were certainly very variable and permitted of great elasticity of treatment. But everything depended upon the basis on which the statistics were collected. There had been a recent controversy about statistical methods, in which, again, Professor Karl Pearson was very much interested, in which it was found that certain events occurred a certain proportion of times; but everything depended on the estimation of when the thing occurred, and when it did not, on whether a particular thing was present, or whether it was not. For instance, this Association had had, in this room, controversies about the number of mentally defective persons present in prisons and inebriate reformatories. It was very easy to put down a definite proportion, say, 60 *per cent.* or 70 *per cent.*, but everything depended on the estimate made and the standard accepted by the person who went to the inhabitants of those institutions and examined them to find out the number of defective and non-defective respectively. One person would give the figure 60 *per cent.*, and another, for the same institutions, would arrive at 70 *per cent.* What he wanted specially to insist upon was that the figures were of no value unless they were estimated on the same basis, and that when one had certificates of this kind, in which everybody would have his own particular standard of estimation, it was impossible to get an uniform basis for statistics. He was not putting that forward as a counsel of despair. Those specially concerned must have statistics for their own purposes and interests, and they would be compelled by outside pressure to have statistics; but the conclusion to which his remarks pointed was, that whatever results they got from statistics, such results should be received with the utmost reserve and caution, because the basis on which the statistics were collected was a fluctuating and variable basis, and was never the same for any two people.

Dr. STEVENSON said that he would like to express his sense of obligation for the very kind terms in which Dr. Coupland referred to their efforts at the General Register Office to codify and explain exactly what they were doing at that office and what their practice had been. He did not think he could very usefully contribute to the discussion upon primary and secondary causes of death, but it was a debate to which he would listen with the utmost interest, and he did not doubt it would considerably enlarge his ideas on the subject. He did feel that the definition which had been adopted by the Registrar-General was one which was—as probably any other would be—open to a great deal of criticism. But in the absence of any definition there was no guidance as to what was meant by "primary" and what was meant by "secondary," and so, while some practitioners understood the term in the sense of importance, others understood it in the sense of time relationship. They thought that if they could introduce the idea that importance was what was in their mind, they would be taking the first step, though only the first step. Before any real basis of comparability could be arrived at, a

great many subsequent steps must be taken in elucidating and defining which of a combination of causes was to be the one selected as the chief. He would just allude to the difficulty with regard to the discrepancy between the numbers of deaths assigned to insanity in the Registrar-General's tables and in those of the Lunacy Commissioners. He thought the reason for that would be found in a statement on page xxxv of the *Registrar-General's Manual of Causes of Death*, in which it was shown that in the rules for one out of several simultaneously assigned causes, insanity was given preference over the great bulk of local diseases. As he had remarked in the *Manual* itself, they did not claim that those rules were incapable of improvement; they merely put them forward as rules which had been in operation, more or less in their present form, for many years, and, they said, they considered the present time inopportune for changing them. With regard to the request to state the form of brain disease from which the patient suffered, that was complied with by a large number of asylums, whereas other asylums did not state the mental disease. If at an asylum where that request was complied with a patient died of a local disease, the death would be classified with insanity; whereas a death from the same disease occurring in an asylum where the mental disease was not stated would go, more properly in his opinion, to the local disease.

Dr. J. F. BRISCOE said that in the paper just contributed by Dr. Coupland the subject of the causes of death had been viewed from the scientific aspect. The late Dr. Hilton Fagge, in a paper on the various modes of dying, said that men died at the head, at the thorax, or at the abdomen; and he, Dr. Briscoe, believed that most practitioners built their death certificate from that standpoint. He recently read a paper before the Association on the subject of appendicitis in asylums, but he had the greatest difficulty in getting details of any value from the Registrar-General. He had the letter from that office stating, "The Registrar-General has no information showing the number of cases of deaths from appendicitis." He went to the Blue Book of the Commissioners in Lunacy and found primary and secondary causes of death, and from that he got his cases of appendicitis. In Form 21 of the Lunacy Commissioners it was stated that the primary disease was that one which initiated and was commonest of the train of events leading to death, and not a mere secondary, contributory, or immediate cause. This subject was recently discussed before a branch of the British Medical Association, but none of the practitioners there understood the change proposed by Dr. Coupland; and as it would be meeting again on the following day at Southampton, members had asked him if he could find out the feeling of the psychologists as to how they filled up their returns. Dr. Mercier's remarks had made all his hearers think; and as Dr. Coupland was an experienced teacher at Middlesex Hospital he hoped that gentleman would make matters clear, for the primary cause of death must be the train of events leading to death.

Dr. BEDFORD PIERCE said he agreed with those who expressed satisfaction that an opportunity had been afforded of discussing the form to be filled up in cases of death. There were many in the room besides himself who had had a difficulty in relation to the certificates when the cause of death was not known, *i.e.*, when careful clinical and even a *post-mortem* examination did not disclose a cause which could be entered. If a blank form were sent an inquest would probably be ordered, with the accompanying annoyance and trouble. It practically meant that the certifier felt pressure was put upon him to assign some cause in the certificate; and every time that was done it tended to falsify the returns. In the similar tables arranged by the Association relating to causes of insanity it was understood that those who filled in the form were not to be obliged to put down a cause: a space was left for "unknown," to be filled in only after full investigation and inquiry. The result of such provision undoubtedly is to make the statistics more trustworthy. Something of the same kind might advantageously be introduced in regard to causes of death.

Dr. ROBERT JONES said it was sometimes very difficult to fill in the certificate of death; particularly is this the case where, as at Claybury, the clinical department is on one side of the establishment and the pathological department in quite another part, and where the autopsies are all performed by the pathologist. The remains of the deceased patient are taken to the pathological department immediately after death, and the examination is then made, but the pathologist would naturally know nothing about the previous history except what he read in the

case-book, or what was stated by the medical officer under whose care the patient was, and it was not always convenient for the medical officer to attend at the time the *post-mortem* examination was being made. In these circumstances and in certain cases the pathologist would naturally experience great difficulty in arriving at a satisfactory cause of death. To take a case dying, for instance, from convulsions, as 6 *per cent.* of all epileptics did, the pathologist had no personal knowledge of the epileptic convulsions, and there would probably be no pathological indication of seizures or of the *status epilepticus*, and he may be obliged, therefore, to give the cause of death according to some pathological finding which was not the immediate cause of death. He always tried to be present himself at the autopsy, and usually a clinical cause of death would be certified by him (Dr. Jones), whereas another cause might be registered by the pathologist, and anyone who had read the reports of the asylums of London would, so far as Claybury was concerned, read one series of events in the medical superintendent's report and another series of events relating to the same cases in that of the pathologist. In the case of general paralytics or epileptics he, Dr. Jones, filled in the primary cause of death as such, whereas the pathologist might record or register broncho-pneumonia, bronchitis, cystitis, morbus cordis, pulmonary tuberculosis, or dysentery. These would be found in the medical superintendent's report as secondary causes. There is no certainty that these factors would appear as the primary or proximate causes of death in the medical reports. In this way there were two sets of statistics side by side for the same series of cases in the Claybury Asylum. He appreciated Dr. Mercier's remarks concerning the personal equation, which was most important, as to finding the factors, or antecedents, or associated factors determining any event. It was out of fashion now to speak of causes. Everything is now an antecedent, or concomitant, or contributory or associated factor—not a cause! On one point relating to cause and effect he had recently prepared a letter for *The Times*, but a feeling he had in regard to the dignity of the high office held by the persons who reported what he was about to criticise caused him to abstain from sending it for publication. In the last Blue Book of the Lunacy Commissioners for Ireland, 1912, which is their report to the Lord Chancellor of Ireland, it was stated that alcohol had little or nothing to do with insanity! He (Dr. Jones) would firstly refer to the statement of the English Lunacy Commissioners in their report for 1904, which is as follows: "As before, alcoholic intemperance takes a chief place amongst physical causes (of insanity) and preponderatingly in the male sex, being noted in 22·8 *per cent.* of the male attacks (of insanity) and 9·5 *per cent.* of the females." On p. 13 of the same report of the English Lunacy Commissioners to the Lord Chancellor are these words—"In any case it cannot be denied that alcohol is a brain poison, and it is therefore incumbent to show what part it plays in insanity." [What do we find in the last Report of the Irish Lunacy Commissioners, 1912, on p. 21—"The general conclusion which may be safely drawn from the facts is that alcohol possesses comparatively small importance as a cause of insanity in Ireland." Yet these Irish Commissioners, both medical men, on p. 18 of the same report, tabulate their statistics giving the number of admissions of insane persons during the year into all the public asylums of Ireland as 3,685 (1,996 males, 1,689 females), and the number of cases where drink is the principal or contributory factor is given as 451 (366 males, 85 females), a proportion of insanity as due to drink of 18·33 *per cent.* of males and 5·03 of females, or a total amount of insanity due to drink as 12·24 *per cent.* of all cases of insanity occurring during the year! If this is not an example of the extraordinary effect of the personal equation in compiling statistics, then it is an Irish "bull," and he (Dr. Jones) was only amazed at such a report. These sentences in brackets have been altered in the proof so as to quote correctly.] In the newly proposed scheme, opposite the numbers 68 and 69 he saw a place for recording "deaths from mania, deaths from melancholia." No patient died from mania, and no patient died from melancholia, but patients did die from bodily conditions of which the mental correlative was one of the main symptoms! He believed Dr. Coupland quoted with some surprise a statement which appeared in some of the very back numbers of the Registrar-General's Report; he said so many deaths had occurred from pain, so many deaths from grief, so many from fear; surely those from mania and melancholia were examples of the same errors as were now so much disparaged, and these columns 68 and 69 were quite on all fours with those quoted with some

surprise as occurring from grief and fear. In filling up the form he (Dr. Jones) always tried to find a definite physical factor as the primary cause of death, regarding the mental condition as a correlative or subsidiary cause. Referring to the new tables now imposed by the Registrar-General, he regretted it was now too late to have them altered, as they had already lain for the period required for their approval before Parliament. He thanked Dr. Coupland for his paper.

Dr. BOND said he was quite sure all present agreed that it was a happy thought on the part of Dr. Coupland to ventilate this subject before the Association. And the history he had given of it, in regard both to nosology and tabulation, had not only been interesting to hear, but had greatly clarified one's thoughts on the matter. Upon himself it had had the further effect of reinforcing the opinion he had long held, and which was probably the feeling of most of the members, namely, that it would be lamentable if the scheme of the causes of death, their mode of certification, registration and tabulation, adopted either by the Commissioners or by this Association, were to differ materially from that in use at the time at the General Register Office, Somerset House. He said that because it scarcely admitted of argument to state that the value of the Association's own figures in relation to the insane, remembering all the labour involved in their preparation, would be rendered largely nugatory if they did not admit of strict comparison with those of the general population, of not only our own but also of other European countries. The argument in favour of a change had been abundantly supported by the evidence which Dr. Coupland had just adduced, and the paper was all the more welcome in that it furthered this international comparison of which he had spoken. Most asylums which had adopted and used the Association's tables did, of course, by such adoption, employ the terms "principal" and "contributory"; they arranged their causes of death in groups and in the manner followed by the schedule issued by the Commissioners, which, as was well known to members, followed that in use at Somerset House. There remained, however, a few asylums which did not do this, and their figures were by that fact made less easy of reference. With regard to the Association's death tables (D₁, D₂ and D₃) he took it that if the new scheme were adopted it would be necessary to change the words "principal" and "contributory" back to the old terms "primary" and "secondary"; but he would suggest, in the light of the definitions of the latter terms as set out in the new certificate of death, that it would not be incorrect and might be helpful to retain the terms "principal" and "contributory," but place them in brackets after "primary" and "secondary" respectively. He was very glad to notice the stress which Dr. Coupland laid on the importance of secondary causes, and desired heartily to endorse the remarks of Dr. Mercier and Dr. Robert Jones on the difficulty which was frequently encountered of relegating a cause to a secondary position. Indeed, the mention of these words "primary," "secondary," "principal," "contributory" led him to ask the meeting to consider whether there was any use at all in these words, as here applied. He had given a good deal of thought to the point, and could not satisfy himself that there was any statistical necessity for, or any scientific gain by, their employment. On the contrary, their retention, he believed, was a scientific loss. For his own part, if it had to be conceded that there was a fundamental necessity for the picking out of only one cause, namely, the primary one, for tabulation and registration, then the argument he wished to put forward fell to the ground. But he did not concede that it was so. In his own view, the Association's Table D₁, with its three columns—principal, contributory and total incidence—refuted the necessity of such. One could find many examples to show that the custom of selecting a single cause for tabulation and magnifying that cause had the effect of diminishing any other causes by just so many times as those other causes were dubbed secondary. He did not think any two persons looked at a given clinical case, and the result of *post-mortem* examination on such a case, quite alike; and it passed the wit of medical men to be able, in the case of a considerable proportion of deaths, to decide which cause was the principal one. His view was that, however cleverly the definitions were framed, the personal equation of the certifier was bound to make its effect felt, and even the mood in which he happened to be at the time, and, while he recognised that statistics embracing a large enough number of cases had the effect of largely eliminating the personal equation, he felt that it was a pity to introduce it when, as here, there was no necessity. Briefly put, his con-

tention was that scientific accuracy would best be served by the abolition of any attempt to separate causes into such groups as primary and secondary, and, whether this practice were or were not retained, by the systematic tabulation and publication of the "total incidence" of the various causes, *i.e.*, the aggregate of the figures, representing their primary and secondary incidence. If that suggestion were to receive recognition, the next question to consider would be the desirability of studying the relation of age-periods, not, as at present, to the principal incidence, but in future to the total incidence of the various causes of death.

Dr. M. ABDY COLLINS said that Dr. Bond's remarks were largely on the lines which he had intended to follow. His difficulty was that there was no real difference between the primary and the secondary causes; and this difficulty would exist so long as an attempt was made to pick out one of an array of causes and say it was primary or it was secondary. And in making a *post-mortem* examination, probably no two people would agree as to what was the primary cause. What were usually attributed as the primary causes were not really so; as a matter of fact, the primary causes of death were very few: syphilis, tuberculosis, rheumatic fever, typhoid fever, and so on; yet they did not enter at all largely into the certified primary causes. The primary cause of an attack of insanity was difficult to ascertain, and the same difficulty occurred in relation to the cause of death. So long as this requirement continued, so long would the figures appear foolish in the eyes of students of statistics.

Dr. MENZIES said there was one point on which he would like some light thrown by the Commissioners, namely, the duration of the disease. At various times there had been agitations against stating the duration of the disease, because of practical difficulties in reference to the relatives, insurance companies, and employers. If it was not obligatory to state any duration at all, what object was there in requiring such detail in the new form of certificate? Some of the members had had experience of the troubles which might arise through being called as witnesses. An insurance office refused, say, to acknowledge liability to pay the insurance on a man's life because he was the subject of general paralysis. Early symptoms of that disease, in themselves rational actions, were not uncommon, and one of the things such a man might do was to go and insure his life. A patient insured his life three years prior to his admission, and he had begun to spend his money freely six months before that. In the end he died of general paralysis after two months' residence in the asylum. In that case ought one to put down as the duration of his illness the two months he was in the asylum, or the three years and six months during which there was a history of onset? If the shorter period, then the insurance people would pay without demur; but if three years and six months were stated, they refused to meet the claim, and he had known a threat to fight the case at law to arise out of such. He had known poor people have to give up a claim of £24 on a life because at the time of entering into the policy they were ignorant of the existence of the general paralysis. The same could be said of phthisis. In the present form one could put in the word "unknown," and then no one raised the difficulty. What was the object of requiring the duration of the disease to be stated so exactly in the new form of certificate?

Dr. MCRAE, referring to the remarks of Dr. Menzies as to the duration of the disease, said that a colleague once got into trouble in similar circumstances, and his own practice was simply to add the word "over" to the period of asylum residence. That satisfied the Commissioners in Lunacy, and avoided trouble in connection with any claims.

Dr. W. DAWSON expressed his full concurrence in what had been said about the difficulties introduced by the personal equation; but with regard to one of the difficulties in which Dr. Jones found himself, he was glad to be in a position to relieve his mind. Dr. Jones said he found a discrepancy between the report of the Irish Inspectors in Lunacy and a former statement of Dr. Coupland's. There was in reality no discrepancy. Dr. Jones alleged that a statement had appeared in the report of the Irish inspectors to the effect that alcohol had nothing whatever to do with insanity. Nothing of the kind appeared in that report. What did appear was that, upon careful comparison of the statistics, there was found to be no relation between the distribution of drunkenness and the distribution of insanity in the different Irish counties, and that the statistics showed very little chronic alcoholism in Ireland.

Dr. COUPLAND, in reply, admitted that it was often impossible to state definitely the duration of a fatal disease. Although the requirement to do so had long been on the forms of death certificates, it was not enforced; nor were the data furnished by very many practitioners. The information, moreover, was of no material value. In altering the phrasing of Form XXI, it was thought well to adopt that in general use, but had the point raised by Dr. Menzies been then appreciated, the chronological headings might possibly have been omitted. On this ground he was sorry that he had not thought of bringing the subject under the notice of the Association at an earlier date. One could concur in much of Dr. Mercier's criticism, but if we were to have national statistics at all, we must have some definite basis on which to proceed. The value of collating all assigned causes of death in order to arrive at correct knowledge of disease incidence, was, as pointed out by Dr. Bond, indubitable; but apparently for the purpose of death registration and analysis, it has been deemed necessary to restrict the comparison by limiting attention to one cause for each individual. The division into "primary" and "secondary" had no doubt led to confusion; and the wider our knowledge the greater was the confusion likely to become. He felt that even now Somerset House would not get absolutely uniform returns; it seemed impossible. Still, Dr. Stevenson had made a very gallant and useful attempt in the *Manual*, a copy of which was passed round, which he hoped would be in the hands of all who had to register deaths at asylums. It was worthy of study, and would be found very helpful.

The following communication has been received from Dr. Hayes Newington:

The debate on Dr. Coupland's paper read at the last general meeting brought back upon me memories of former discussions, arguments, platitudes, the "*non sequitur*," the "*reductio ad absurdum*," and so on, through which, in the same room, the members of the Statistical Committee passed on their way to the evolution of the present tables. I should have liked to join in, even for the sake of shaking hands with some old acquaintances, but I felt that to do justice to them required more clarity of thought than the labours of the day in other directions had left me. It is more than ever apparent to me that faith in the usefulness of statistics has a weak and flickering vitality, one that can be easily hurried into an early grave by a few slight, though respectful prods, to have its virtues finally recorded by the epitaph, "one can prove anything by figures." My memory does not actually tell me that the epitaph was put up on this occasion, but as a rule no decent burial of statistics is complete without it. It is undoubtedly permissible to minimise the evil use of statistics by pointing out their obvious defects, and on this occasion many insidious and destructive defects passed unnoticed. Still, the world will have statistics, and one would like to see more endeavour to increase than readiness to depreciate their value. It occurs to me that most of the trouble arises from our expecting too much from them. We look to obtain as much value from the enumeration of data which are obviously uncertain as from those which are probably accurate. If we approached a statistical problem with the acknowledgment that as much instantly available virtue cannot be found in the Registrar-General's death tables, for instance, as in the financial statements of the Bank of England, we should not be so disappointed in our labours; we should at least leave a margin for the discovery of some value, however small, in statistics of any kind, provided reasonable care is taken and reasonable allowances are made. When we come to think of it, even the statements of the Bank of England are not absolutely certain within our own personal knowledge. We accept them, and, maybe, deal with them as uncontested and incontrovertible, but we do so only on faith in the opinion of others. To satisfy ourselves personally we should have to see that no box of bullion contained a quantity of lead equal to that of the gold assumed to be contained therein; that the securities supposed to be held by the bank were actually in the possession of the bank. It happened not long ago that the manager of a large bank borrowed money for his own personal use on securities lodged by customers, and actually succeeded in deceiving the professional auditors, when they came to inspect the securities, by running round the corner to pledge some of them for money so as to release others which, in their turn, would be wanted for inspection. Incredible as it may seem, this imposture went on for some time. Then to return to the bank, the data have to be accurately collected, stated, and

summed up, and finally the responsible officer has to announce what the world takes to be facts, but which can at the best be only his opinion, since it is impossible for him, as it is for us, actually to verify each datum, and each figure built up on the data. It is obvious that even in the transactions of the Bank of England there is only a moral certainty, amounting almost to, but not quite reaching, absolute certainty. And so it is with all statistics. The calculations founded on the least certain bases only differ in degree of certain accuracy from that which passes as absolute truth. One is led by the conviction that, after all, what we call statistical facts are but opinions, to the reflection that opinions are divisible into two classes, the personal or individual, and the general or homologated. The former is notoriously liable to error: our old friend the personal equation comes on the scene. He is indeed a troublesome person at any time, but doubly so when he ceases to be an equation, by failing to adopt a consistent practice of his own. It may be said that, from one point of view, the chief aim of statistical inquiry is to get rid of and abolish the personal equation, to iron out the creases caused by personal inaccuracy, whether it arises from incompetence, carelessness, want of proper opportunity, or even that mild form of fraud which allows a man, often unconsciously, to give value only to those points which fit best with his preconceived object. We reduce his error of opinion on one side by mingling it with other opinions, which may and probably do compensate by errors on the other side. In any case we get an average, which is probably not exactly accurate, but is certainly more likely to approach truth all round than the personal expression of belief. The greater the difficulty of following out the threads of a complex problem, the greater is the need to reject the personal in favour of the average. The world demands statistical opinion, in fact it cannot regulate itself, it cannot do its business, it cannot protect itself from injury or loss without the aid and guard supplied by average opinion. Let us take the question of the alleged increase of insanity, involving as it does momentous issues of race degeneration, costly provisions, deep thought and arduous endeavour to meet and conquer the assumed evil. If we rely on personal opinion we are landed at once into a quagmire. "A" is loud in the expression of an opinion, founded on his personal experience, that the world is rapidly becoming a mad-house. It may be that he really does know of much insanity in increasing ratio. He may acquire large acquaintance with such cases by reason of office, of increased reference made to him as he gets older, or increase of practice and so on. His accumulated knowledge tends to settle itself down on the more recent years, and thus vitiates that comparison with earlier years which is essential to the estimation of increase. "B," on the other hand, withdraws himself from the activities of life, meets fewer people, reads less and consequently hears less of occurring insanity. It may be that he, therefore, forms the opinion that there is actually less insanity. The only adjuster of such personal divergences is general or average opinion. In this particular matter the Commissioners in Lunacy collected general opinion, and, digesting it with other information at their sole command, produced a cautious conclusion which, in the view of most of us, is slowly showing itself to be the correct one. Assuming that we may be able to attain reasonably useful information by careful digestion of general opinion, to what use shall we put that information? If the data are practically certain, and if the steps of evolution between them and the conclusion evolved are short and clear, we can act on that conclusion at once. For instance, we might take the balance-sheet of a bank, or other reputable undertaking, as a practically sure guide to safety in investing capital therein; but where the data are uncertain and the process of forming a conclusion from them involves numerous complicated and doubtful stages, then it is only the fool and dishonest that would use them for immediate action. They need to be reserved for comparison, which is, I suggest, the chief, one might say prime, method of applying such value as they may have. Even in the case of the bank, however profitable the operations, as recorded in the balance-sheet, may have been, they might have been more profitable in the preceding year, and yet more so in years before that, and such facts suggest reflections which would have been dormant without comparison. A cautious man will invariably regard the comparing value of figures before their positive value. This obviously must be the case with our figures dealing with the problems of insanity, subject as they are to the uncertainty of data, and liable to such a disintegrating factor

as the 4s. grant of old or the 7s. grant now proposed. The former in its effect invalidated all the comparing value ratios arrived at before that time. To sum up my argument, I submit that, with the exception of a very few, our data are too uncertain to have any positive and immediate value, and therefore can only be used for the purposes of comparison with their predecessors and successors. But there is one advantage, *vis.*, that they are dealt with mainly by men who have special knowledge, combined with experience in tabulation. Opinions may differ, but they are very generally made with some scientific intention and discrimination. Further, the departure from truth can be to a great extent discounted by widening, as far as can be, the area of collection of opinions, and, as a corollary, any one of us who is in a position to collect and tabulate a sufficient bulk of experiences owes to future generations the duty of contributing to the best of his ability. It may be that no fruit will be gathered in our day, but present endeavour must, without doubt, prepare a large amount of material from which broad conclusions of much value will be drawn some day by the skilled statistician, who can be trusted to generalise, without falling into traps of error, which he will learn to avoid by the mistakes of his predecessors.

With respect to the new summary of deaths table laid before the meeting by Dr. Coupland, I entirely associate myself with the views expressed by Dr. Bond as to the pre-eminent value of the column for total incidence; in fact I should go further, and prefer, in place of the two columns of primary and secondary causes of death, one column only for the enumeration of all appearances of a disease contributing to death, stated indifferently either as to time or importance. We know, however, that the insertion of these two columns is the price that is paid for extending the uniform basis of enumeration; on the part of the Commissioners, by bringing our statistics into line with those of the remainder of the nation; on the part of the Registrar-General, by bringing the nation's statistics into line with those of many other nations. I take it that if, as I suppose, it is sought to arrive at the total lethal influence possessed by particular diseases, the whole of the occurrences of those diseases, as causes of death, must of necessity be enumerated. It seems a pity that, when we start fair for this table with, firstly, a defined datum that cannot be a matter of doubt when it is stated—a doubt which must often be present in the assignment of insanity, or recovery, or form of the mental disease—and, secondly, with much and increasing precision in determining the existence of the diseases themselves, it should for other reasons be needful at the very outset to import a source of much doubt. The exact meaning to be given to the two terms used offers an occasion for that doubt, an academic doubt, whether, as has been said with some authority, "prime" in itself means of chief importance, or whether, as has been felt by others, of whom I am one, that the root sense of the word means priority in time, the alternative only growing from it by a process of conventional, but by no means general, practice. But however that may be, there are plentiful instances of its use in either sense in all relations by all classes of speakers and writers. Primary dementia is a case in point, but the most convincing instance of doubt is supplied in the course of certifying death. In 1845 the instructions issued to certifiers bade them "write the causes of death in the order of their appearance, and not in the presumed order of their importance." In the manual prepared by Dr. Stevenson, and issued by the Registrar-General, one reads, "They *now* are *very generally* used as indicative of the relative importance of the causes certified." In the face of that, it is mere waste of time to discuss the question of what the terms ought to mean. Then there is the doubt, so freely expressed at the meeting, about the selection of the more important disease as the cause of death. There is, indeed, the opportunity for the personal equation. The question of which method best subserves the ultimate aim of the enumeration, whether, on the one hand, the selection of a frequently doubtful particular, or, on the other hand, the enumeration of the total particulars presumably stated accurately, is best discussed on concrete example. For this purpose I have taken, from the last asylums report of the London County Council for 1911, the twelve diseases most prolific of death in those asylums. The total deaths in the report are stated to have been 1,673, a number clearly sufficient to form a satisfactory basis. In addition, the causation has been stated by a body of men who must be held to be at least up to general professional average in capacity, experience and scientific instinct:

Disease.	Primary.	Secondary.	Total incidence.
General paralysis	335	7	342
Tuberculosis (lungs)	233	49	282
Pneumonia, broncho-	107	106	213
Valvular disease of heart, endo- carditis	74	79	153
Arterio-sclerosis	74	76	150
Fatty degeneration of heart	55	79	134
Old age, senile decay	99	28	127
Organic disease of heart	26	95	121
Pneumonia, lobar	84	18	102
Bright's disease, chronic	43	49	92
Brain, softening	61	28	89
Dysentery (colitis)	69	16	85

Of course in the case of general paralysis we have to deal with an all-sufficient and desperately effective disease, and it is somewhat extraordinary that even in seven out of 342 instances it could occur in such a relation as to admit of its being returned as secondary. Here the primary relation practically covers the whole causation, but when we come to such diseases as chronic Bright's and the cardiac affections, can it be said that the primary column tells anything like the whole truth as to the fatality really attributable to them? With how many of the secondary causes may they not have been the real determiner of death, by turning the balance against recovery from the so-called primary disease, from which the sufferer might have recovered if the secondary had not been present? In such a case it may be fairly said, on the other hand, that the sufferer might have lived on with the chronic disease if the primary had not occurred. The truth of such an allegation may be admitted, but this evident possibility on either side strengthens the call for all causes being enumerated on equal terms. It was for such reasons that the Statistical Committee introduced the column of total incidence in Death Table D, i. The same views prevailed in settling the method of enumerating the assigned causes of insanity. Whether alcohol is regarded as a cause or only a symptom of existing insanity, its use in either relation is productive of the mental condition at the time of enumeration. In view of the great diversity of opinion, the estimation of alcoholic influence only when it is stated to be a primary cause would leave out of sight much that should help to the accurate determination of its prejudicial effect. It is right to point out that in the manual mentioned before there are rules by which a choice of one from two or more assigned causes may be made for the purpose of preferring one to the other or others. But, though fairly compact, these depend for their proper use on a series of groupings. To secure uniformity it is absolutely necessary that every certifier should have a copy of the manual in his possession.

The Care of the Defective in America.⁽¹⁾ By WINIFRED MUIRHEAD, L.R.C.P.Edin., Pathologist, Royal Asylum, Morningside, Edinburgh.

IN the United States of America each state has self-government and different laws, and the latter differ to an even greater extent than is the case between the laws of Scotland and England; consequently some states have progressed infinitely further than others in the laws and the application of these laws for the social welfare of the people.

I was only able to visit institutions for the care of the feeble-minded in a comparatively small area of three states, and