“SOCIAL CLASS” GRADIENT IN SCHIZOPHRENIA

BY

LILLI STEIN

Institute of Psychiatry, University of London

INTRODUCTION

An understanding of the intricate relationship between an illness and the socio-economic complex of urban society is essential for its prevention. Are social, economic, occupational, or family circumstances associated with the illness? If so, are they causally connected or are they the results of the illness itself? Are unfavourable social or economic factors connected with contracting the illness (inception), or do they operate only against the recovery of affected persons (prevalence)? Is the association between the inception of illness and environmental factors directly proportional, or do the latter enter into effect only beyond some threshold of social tolerance? Does the relationship between illness and environmental factors affect both sexes and all age groups similarly? Do social or occupational factors operate in the same way in different cities or in different communities within the same city? These are only a few of the questions to which social and preventive medicine needs answers.

Some of these problems have been investigated in respect of acute physical illnesses such as infectious diseases, which become conspicuous fairly quickly after inception and for which the identification of the illness is relatively straightforward; but the identification and separation of socio-economic and family factors is by no means straightforward. In mental illness, however, there are additional difficulties, as for example the unknown interval between the inception of illness and its manifestation, and between the latter and the demand for medical care; and there are further problems of precise diagnostic criteria and identification of mental illness outside hospital. It is not surprising, therefore, that as yet there are few conclusive findings on the relationship between mental illness and specific socio-economic factors; opinions on the possible reasons for—and

even on the existence of—such relationships diverge considerably.

Investigations into the hospital-treated prevalence of total psychiatric illness have agreed on the “social class” gradient—the increase in prevalence with decrease in socio-economic status; but for individual diagnoses the findings have by no means agreed. Faris and Dunham (1939) found correlations between specific diagnoses and indices of social isolation, and for schizophrenia in particular they showed that prevalence was highest in the central areas of Chicago and decreased progressively towards the periphery; however, studies of incidence in some cities of different types, as for example Kansas City (Schroeder, 1942) or in Austin, Texas (Belknap and Jaco, 1953), did not find such a regular pattern. Again, the findings in Bristol of Hare (1956) agreed with the Chicago findings in regard to male schizophrenics but differed somewhat for female schizophrenics; moreover, Hare found no association between the organization of the city and either manic depressive psychosis or the psychoses of old age.

The social class gradient in schizophrenia, observed in all studies in which a definite socio-occupational index has been used, has led to widely divergent hypotheses. Some investigators have construed the class gradient as resulting from downward occupational mobility—“drift”—of schizophrenics before reaching medical attention, while others have postulated other factors connected with job-selection; for example Clark (1948) suggested that certain occupations and also low pay aggravated pre-schizophrenic problems, and Ødegaard (1956) that schizophrenic persons tend to go into, and remain in, stationary or decreasing occupations rather than expanding occupations. Other investigators have considered that occupational mobility features are not relevant; Hollingshead and Redlich (1955), in a small

sample study, found that schizophrenics were more upwardly mobile than the average population, "achievers and possibly over-achievers"; and in a comprehensive study of the prevalence of treated schizophrenia in New Haven, Hollingshead and Redlich (1954) found that the marked social class gradient reflected class differences both in treatment and in rehabilitation, and suggested that "lower class living" fosters social isolation.

As regards other diagnoses, and particularly manic depressive psychosis, there is not even agreement on the existence of a "class gradient". Various investigators have found that manic depressives are equally common in all socio-occupational classes (Clark, 1949; Hare, 1955), whilst others have observed manic depressive psychosis to be more common among persons of higher economic status (Malzberg, 1956a) or of higher education (Malzberg, 1956b). Conversely, other studies have found a class gradient in first admissions for manic depressive psychosis similar to, though less steep than, the class gradient in schizophrenia (Tietze, Lemkau, and Cooper, 1941); the comprehensive reports for England and Wales showed this gradient for male manic depressives in hospital in 1949 (Registrar General, 1953) and again in 1950 and 1951 (Registrar General, 1955). In the England and Wales admissions, the excess of manic depressive patients in Social Class V was most marked among young men and in age groups up to 45 years.

These divergent findings appear difficult to reconcile if social class, occupational class, economic status, level of education, socio-occupational status are all taken to be equivalent. If, however, these indices of social status are not equivalent, they may well be distributed rather differently from each other, and the use of one index rather than another may account for apparently conflicting findings. Moreover, the use of one index alone may give a distorted picture, since it is likely that social status, economic status, occupational class, and level of education are slightly differently related to mental illness, and all four (and perhaps more) indices should be investigated simultaneously in connexion with the inception and prevalence of the various mental illnesses.

MATERIAL

The published data on all mental hospital patients in England and Wales in the years 1949 to 1951 indicated the prevalence of hospitalized illness, but cannot be taken as indicating inception, since first admissions were not distinguished from re-admissions. It was possible, therefore, that the marked excess of

men from *Social Class V might be weighted by re-admissions, and might reflect class differences in ability to care for the mentally ill rather than a class gradient in the occurrence of mental illness. If social class (as judged by occupation) were the predominant environmental factor associated with the inception of mental illness, and if Social Class V had truly a higher inception rate, particularly of schizophrenia, then it might be expected that first admission rates for schizophrenia would be significantly higher in typical Class IV-V areas, where the men were mainly in semi-skilled or unskilled work, than in typical Class I-II areas, where the men were mainly in managerial or professional occupations. In order to examine this hypothesis, first admissions for selected diagnoses in 1954 and 1955 were studied in a group of four East London boroughs ('E') and a group of five West London boroughs ('W'). The East London boroughs were outstanding in the 1951 Census for their high proportions—as compared with London as a whole—of enumerated men (occupied and retired) in Social Classes IV and V; conversely, the West London boroughs were outstanding for their high proportions of enumerated men in Social Classes I and II (General Register Office, 1953).

The diagnoses studied for persons aged 15 to 59 years were schizophrenic disorders, manic depressive reaction, and psychoneurotic disorders; and for persons aged 60 to 79 senile psychosis and psychosis with cerebral arteriosclerosis. With the co-operation of the General Register Office, data were obtained on all 1954 and 1955 first admissions from any address in the 'E' and 'W' boroughs, tabulated by diagnosis, sex, broad age group, and (for those stating occupation) social class. These admissions were then related to the populations at risk in several ways. Age-sex populations for 'E' and 'W', based on the enumerated population of each borough in the 1951 Census, were used to calculate age-sex rates of first admission. Social class populations of occupied and retired men in 'E' and 'W', based on the enumerated men in each borough in the 1951 Census, were used to calculate crude social class rates, and were further used in conjunction with the Occupation Tables of 1951 (General Register Office, 1956) to make population estimates of men aged 15-59 who were occupied as distinct from those who were retired or those who were unoccupied. From these estimates, a second series of population estimates was made of age group by social class of occupied men in 'E' and 'W', on the basis of interpolations from the age-distributions of

* The term "Social Class" used here and in subsequent paragraphs is, strictly speaking, "occupational class", and is based on the Registrar General's "Classification of Occupations, 1950" (General Register Office, 1951).

men in different occupations in England and Wales as shown in the One Per Cent. Sample (General Register Office, 1952). Using these estimated populations of occupied, retired, and unoccupied men by age group and social class, "index" rates of first admission for each age-social-class group in 'E' and 'W' have been derived; clearly, however, these index rates are very speculative.

In addition to the analyses of age-sex and social-class specific rates of first admission, various social and demographic characteristics of 'E' and 'W' have been analysed. Though these relate to 'E' and 'W' and cannot be related directly to the persons who were admitted to mental hospitals from these areas, they illuminate certain features in 'E' and 'W', and suggest that, in future investigations, data on several other factors as well as occupation should be examined.

(1) FIRST ADMISSION RATES IN THE 'E' AND 'W' BOROUGHES

GENERAL FINDINGS.—The population in the four 'E' boroughs was approximately half of that in the five 'W' boroughs; in the 1951 Census, 'E' had 173,710 persons aged 15–59 years and 37,891 persons aged 60–79 years, whereas 'W' had 337,398 and 76,509 respectively. The first admissions in 1954 and 1955 for schizophrenic disorders, manic depressive reaction, and psycho-neurotic disorders totalled 271 from 'E' and 759 from 'W'; and the first admissions for senile psychosis and psychosis with cerebral arteriosclerosis numbered 69 from 'E' and 123 from 'W'.

Considering first the three diagnostic groups in the age band 15–59 years, Table I shows that the 'E' rate, 7.80 per 10,000 persons (8.06 for males, 7.55 for females), was very significantly lower than the

TABLE I
FIRST ADMISSIONS TO MENTAL HOSPITALS FROM 'E' AND 'W' BOROUGHES OF LONDON, 1954–55
Rates (Annual Average) per 10,000 Population in each Age-Sex Group

Diagnosis	Boroughs	Sex	Age Group (yrs)			Total (15–59 yrs)	
			15–29	30–49	50–59	Crude	Standardized*
Schizophrenic Disorders	'E'	Persons ..	2.37	2.23	0.67	2.02	1.95
		Males ..	3.69	3.08	1.08	2.98	2.93
		Females ..	1.17	1.32	0.31	1.08	1.07
	'W'	Persons ..	4.88	4.15	3.46	4.25	4.25
		Males ..	5.55	3.80	1.72	3.99	4.01
		Females ..	4.39	4.44	4.63	4.46	4.46
Manic Depressive Reaction	'E'	Persons ..	1.22	3.44	9.21	3.60	3.80
		Males ..	1.12	2.71	8.62	3.09	3.21
		Females ..	1.32	4.22	9.73	4.09	4.32
	'W'	Persons ..	1.83	3.99	8.38	4.14	4.04
		Males ..	1.17	3.46	7.08	3.37	3.34
		Females ..	2.31	4.44	9.26	4.72	4.67
Psycho-neurotic Disorders	'E'	Persons ..	1.15	2.80	2.85	2.19	2.28
		Males ..	1.12	2.34	2.87	1.98	2.04
		Females ..	1.17	3.30	2.82	2.39	2.49
	'W'	Persons ..	2.83	2.70	3.31	2.86	2.84
		Males ..	2.99	2.24	2.87	2.59	2.59
		Females ..	2.71	3.09	3.60	3.07	3.06
Total (Three Diagnoses)	'E'	Persons ..	4.74	8.47	12.73	7.80	8.03
		Males ..	5.94	8.13	12.57	8.06	8.18
		Females ..	3.65	8.84	12.86	7.55	7.89
	'W'	Persons ..	9.54	10.84	15.15	11.25	11.12
		Males ..	9.71	9.49	11.67	9.95	9.94
		Females ..	9.41	11.96	17.49	12.25	12.19

* 'E' Boroughs: Bethnal Green, Poplar, Shoreditch, Stepney.

'W' Boroughs: Chelsea, Hampstead, Kensington, St. Marylebone, Westminster.

* Standardized rates in final column standardized to age-sex composition of London population aged 15–59 yrs, i.e. adjusted to make due allowance for the different compositions of the 'E' and 'W' borough groupings

'W' rate, 11.25 (9.95 for males, 12.25 for females). A considerable portion of the excess of the 'W' over the 'E' rate was due to the large number of women from 'W' admitted to mental hospitals; whereas the 'E' female rate of first admission was a little lower than the 'E' male rate, the 'W' female rate was considerably higher than the 'W' male rate. As the age and sex composition of the 'E' population differed somewhat from that of the 'W' population, the crude rates were adjusted to a common standard population; though the standardized rates were slightly different from the crude rates, the 'E'-'W' comparison was not seriously affected. It appears, therefore, that the 'E' rates were lower than the 'W' rates for both males and females; for males, the difference was statistically only suggestive, but for females the difference was highly significant.

This difference, however, did not occur equally in all three diagnostic categories. For manic depressive reaction and for psychoneurotic disorders, there was only a small (and not significant) excess in the 'W' rate as compared with the 'E' rate, and this was of similar order for both males and females. But for schizophrenic disorders, the 'W' rate was considerably higher than the 'E' rate, and this was particularly marked for females, the 'W' rate, 4.46, being more than four times the 'E' rate, 1.08. Indeed, the 'W' female schizophrenia rate was slightly higher than the 'W' male schizophrenia rate.

Apparently, then, the hypothesis that 'E' would have a higher first-admission rate than 'W' has not been confirmed; 'W' admissions exceeded those from 'E'. This excess arose from two sources: a small but consistent excess of 'W' cases in each diagnostic category and for each sex; and a highly significant excess of women admitted from 'W' for schizophrenic disorders.

Considering secondly the psychoses of the elderly—senile psychosis and psychosis with cerebral arteriosclerosis—in the age band 60–79 years, Table II shows that the comparison between 'E' and 'W' was more in accord with the original hypothesis, in that the total rate in 'E' was higher than that in 'W'. The 'E' first-admission rate was 9.11 per 10,000 persons (6.34 for males, 11.25 for females) and the 'W' first-admission rate was 8.04 (5.42 for males, 9.52 for females); though the difference was small and not significant, it occurred in each age-sex group. The standardized rates differed slightly from the crude rates, but the 'E'-'W' comparison was not affected.

When these two diagnostic categories are considered separately, it would appear that psychosis with cerebral arteriosclerosis was less frequently diagnosed in persons from 'E' than in persons from 'W', and less frequently in women than in men. For

the category "senile psychosis", the 'E' rate, 8.18, was higher than the 'W' rate, 6.47; and within both 'E' and 'W' the female rates were significantly higher than the male rates. Yet for the category "psychosis with cerebral arteriosclerosis", the 'E' rate, 0.92, was less than the 'W' rate, 1.57; moreover, within both 'E' and 'W', the female rates were lower than the male rates. Though the 'W' excess in admissions for psychosis with cerebral arteriosclerosis was not statistically significant, the number of cases being relatively small, and though the excess of male rates over female rates in this diagnostic category was statistically only suggestive, both these excesses were in marked contrast to the overall pattern for the elderly (namely, of 'E' rates higher than 'W' rates, and of female rates higher than male rates).

AGE-SEX SPECIFIC RATES.—For the three diagnoses investigated for the age band 15–59 years, Table I shows the age-sex specific rates for each as well as the total rates discussed above. Fig. 1 (opposite) illustrates the age trends.

Schizophrenia.—The age trend in males followed the accepted pattern, and the 'E'-'W' difference was consistent, though not statistically significant; the age trend in females, particularly in 'W', was quite contrary to the accepted pattern, and the 'E'-'W' difference was highly significant for each age group. In addition, there seemed to be a higher incidence of schizophrenic disorders in 'W' among older women than among men, and the female rate in the age group 50–59 years was significantly higher than the male rate.

Manic Depressive Reaction.—There was a steady rise in the first-admission rate with rising age, in both 'E' and 'W' for both men and women; and at each age the female rate was higher than that for males. Comparing 'E' with 'W', in the younger age groups the 'W' rates were slightly higher than the corresponding 'E' rates; but at 50–59 years, the 'E' rates both for men and women rose above the 'W' rates.

Psychoneurotic Disorders.—These gave rather smaller rates than the previous diagnoses, and the age trend was not regular. In general, the older age groups had higher rates than the younger, and women had higher rates than men; a notable exception was seen in 'W' men aged 15–29 years, who had a higher rate than older men or than women of the same age (and more than double the rate for manic depressive psychosis in their own age group). As noted earlier, 'W' had a small overall excess of

FIG. 1.—First admission rates to mental hospitals of persons aged 15–59 yrs, in 'E' and 'W' boroughs of London, by diagnosis, sex, and age group, 1954–55.

psychoneuroses as compared with 'E'; Fig. 1 shows that this 'W' excess was not evenly distributed through the age groups, but occurred almost entirely in the 15–29 year age groups in both men and women.

The Three Diagnoses Combined.—The picture was somewhat similar to the picture for manic depressive psychosis; in general, there was a rising age trend, the female rate being higher than the male rate and the 'W' rate higher than the 'E' rate in most age groups. However, there were several marked divergencies from this general pattern, especially at ages 15–29 years; in this age group, the male rate exceeded the corresponding female rate in 'E' as well as in 'W', and in 'W' the male rate for this age group was higher than in the age group 30–49 years.

For the psychoses of the elderly, the age-sex specific rates as well as the total rates are shown in Table II and Fig. 2 (overleaf).

Senile Psychosis.—The age gradient was steep and the rates at ages 70–79 years greatly exceeded those at 60–69 years. In each age group the female rates were higher than the male rates, and the 'E' rates slightly exceeded the corresponding 'W' rates.

Psychosis with Cerebral Arteriosclerosis.—This appeared to have quite a different pattern, and the anomaly already mentioned—of higher male than female rates and higher 'W' than 'E' rates—revealed an even more curious divergence from expectation, in that the incidence of this diagnosis apparently decreased as age increased. For both males and females in 'E' and for females in 'W', the rates at ages 70–79 were considerably lower than those at ages 60–69 years. It is difficult to reconcile such an age trend with the general 'E' and 'W' pattern of psychoses of the elderly, and it seems reasonable to suppose that the anomaly is one of diagnostic practice.

FIG. 2.—First admission rates to mental hospitals of persons aged 60–79 yrs, in 'E' and 'W' boroughs of London, by diagnosis, sex, and age group, in 1954–55.

"SOCIAL CLASS" SPECIFIC RATES FOR OCCUPIED MEN.—As the 1951 Census data on the "social class" composition in 'E' and 'W' relate only to men of all ages and combine retired with occupied, estimates of the social class composition of the female population in these areas, or of that of men aged 60–79 years, were too speculative to be used in calculating rates. The following paragraphs, therefore, discuss only the first-admission rates of men aged 15–59 whose

occupation was recorded. Since the "populations at risk" were estimated, as previously described, from the occupied and retired men of all ages, and since moreover those admitted to hospital with no occupation recorded, or described as unoccupied (7½ per cent. of all male admissions in this age group) were excluded from the social class rates, these rates should be considered as relative estimates and not as absolute figures.

“SOCIAL CLASS” GRADIENT IN SCHIZOPHRENIA

187

TABLE II
FIRST ADMISSIONS TO MENTAL HOSPITALS FROM ‘E’ AND ‘W’ BOROUGHES OF LONDON, 1954-55
Rates (Annual Average) per 10,000 Population in each Age-Sex Group

Diagnosis	Boroughs	Sex	Age Group (yrs)		Total (60-79 yrs)	
			60-69	70-79	Crude	Standardized*
Senile Psychosis	‘E’	Persons	3.53	16.32	8.18	8.41
		Males	2.35	10.17	5.14	5.07
		Females	4.46	20.91	10.54	10.66
	‘W’	Persons	1.62	15.22	6.47	6.36
		Males	1.36	6.50	3.07	3.14
		Females	1.79	19.68	8.39	8.53
Psychosis with Cerebral Arterio-Sclerosis	‘E’	Persons	1.24	0.36	0.92	0.90
		Males	1.41	0.85	1.21	1.21
		Females	1.12	0.00	0.70	0.70
	‘W’	Persons	1.62	1.47	1.57	1.62
		Males	1.90	3.25	2.35	2.37
		Females	1.46	0.55	1.13	1.12
Total (Two Diagnoses)	‘E’	Persons	4.77	16.68	9.11	9.31
		Males	3.75	11.02	6.34	6.28
		Females	5.58	20.91	11.25	11.36
	‘W’	Persons	3.25	16.68	8.04	7.98
		Males	3.26	9.75	5.42	5.51
		Females	3.25	20.23	9.52	9.65

* Standardized rates shown in final column standardized to age-sex composition of London population aged 60-79 yrs, i.e. adjusted to make due allowance for the different compositions of the ‘E’ and ‘W’ borough groupings.

Table III shows the estimated “social class” rates in ‘E’ and ‘W’ and also in all nine boroughs combined. Social Classes I and II, and also IV and V, were grouped together because of the small populations at risk in some of the borough-class groups and the

relatively large number of admissions with unknown occupation. Taking all three diagnoses—schizophrenia, manic depressive psychosis, and psychoneuroses—together, a class gradient is seen in both ‘E’ and ‘W’, i.e. an increase in admission rates with

TABLE III
FIRST ADMISSIONS TO MENTAL HOSPITALS OF OCCUPIED MALES FROM ‘E’ AND ‘W’ BOROUGHES OF LONDON, 1954-55
Rates (Annual Average) per 10,000 Males in each Social-Class Group

Diagnosis	Boroughs	Social Class of Occupied Males			Social Sub-Class*			
		I and II	III	IV and V	IIIc	Rest of III	IV + Va	Vb
Schizophrenic Disorders	‘E’ ..	(2.73)	2.21	3.04	1.61	2.25	3.07	2.99
	‘W’ ..	2.32	3.07	5.38	4.13	2.87	2.79	9.11
	Total ..	2.37	2.72	4.11	3.57	2.61	2.94	5.75
Manic Depressive Reaction	‘E’ ..	(0.00)	2.42	3.04	1.61	2.48	2.41	3.89
	‘W’ ..	2.74	2.71	4.49	5.05	2.28	3.04	6.56
	Total ..	2.37	2.59	3.70	4.29	2.36	2.71	5.09
Psycho-neurotic Disorders	‘E’ ..	(0.68)	2.10	1.65	3.22	2.03	1.10	2.39
	‘W’ ..	2.11	2.43	2.84	3.22	2.28	2.54	3.28
	Total ..	1.92	2.30	2.19	3.22	2.17	1.76	2.79
Total (Three Diagnoses)	‘E’ ..	(3.41)	6.73	7.72	6.44	6.75	6.58	9.27
	‘W’ ..	7.16	8.20	12.71	12.40	7.43	8.37	18.95
	Total ..	6.66	7.61	10.01	11.08	7.14	7.41	13.63

Class IIIc—Clerical Workers; rest of Class III—All Other Skilled Workers; Class Va—Building and Dock Labourers; Class Vb—All Other Unskilled Workers

decrease in social class. In the aggregate of nine boroughs, this gradient was regular, but in 'E' the gradient from Social Class III to Social Classes IV and V was very small, whereas in 'W' it was marked. (When the five social classes were taken separately, the 'E' rate for Class IV was the same as that for Class V and very little higher than for Class III; by contrast, the 'W' rate for Class V was nearly double that for Class IV.) For each social class group, the excess of the 'W' rate over the 'E' rate was consistent, and for Classes IV-V this excess was highly significant.

For individual diagnoses, the numbers in each class group were small and the class gradient was not consistent.

Schizophrenia.—In 'W', as in the nine boroughs taken together, the gradient was regular; yet 'E' had no apparent class gradient, and the rates for Classes IV-V and Classes I-II (the latter based on only four admissions in the 2 years) were of similar order, and little higher than the Class III rate. Comparing 'E' with 'W', the overall 'W' excess was clearly apparent and for Classes IV-V was highly significant. Yet, when the more detailed sub-divisions of the social classes were studied, the 'W' excess in the overall rate was almost entirely due to the high 'W' rate in two sub-classes: in Class IIIc (male clerical workers) the 'W' rate, 4.1, was more than double the 'E' rate, 1.6; and in Class Vb (labourers, excluding those in building and dock work) the 'W' rate, 9.1, was three times the 'E' rate, 3.0 (and more than double any other sub-class rate in 'W').

Since the original hypothesis was formulated in connexion with the social class factor in schizophrenia, the more detailed rates for social sub-classes are worthy of note. In 'E' the class trend was small and almost all the rates fell within a narrow range of 2.3 to 3.1, the exceptions being the lower rates of 1.5 for Class II and 1.6 for Class IIIc. By contrast, in 'W' the rates ranged more widely; the lowest rate, again in Class II, was 1.7, and (except for clerical workers in Class IIIc who had a rate of 4.1) there was a steady gradient to the Class Va (building and dock labourers) rate of 4.0, and then a marked rise to the Class Vb rate of 9.1.

Manic Depressive Reaction.—Both 'E' and 'W' rates showed some class gradient, though in a somewhat different form; in 'W' the rate for Classes IV-V was in excess (though not significantly) of the rates for other classes. When the more detailed sub-classes were examined, the gradient was again largely due to the high 'W' rates in Class IIIc and Class Vb; yet in 'E', the Class IIIc rate was again one of the lowest among all the sub-classes. Taking all

nine boroughs together, the class gradient was similar to, though less steep than, the gradient in schizophrenia rates.

Psychoneuroses.—No significant social class gradient was discernible in either 'E' or 'W'; indeed, for the aggregate of all nine boroughs, the rates for Classes I-II, Class III, and Classes IV-V were very similar. For more detailed sub-classes, the rates were also very similar and fell within a relatively narrow range (Fig. 3, opposite).

It is impossible to draw firm conclusions from rates calculated for such small numbers of 'E' and 'W' admissions and from estimated populations in the social classes and sub-classes. It would seem, however, that the experience of men in the 'E' boroughs, which were selected as typical Class IV-V boroughs, was not very different among Class IV-V men than among Class III men; moreover, the experience in respect of schizophrenia appeared to be no worse than that for manic depressive psychosis. On the other hand, in the 'W' boroughs, which were selected as typical Class I-II boroughs, the experience of men in Classes IV-V and especially in Sub-Class Vb was markedly worse than that of other 'W' men or of Class IV-V men in 'E'; and this gradient occurred most noticeably in the diagnosis of schizophrenia in 'W' men. If these findings on the basis of the estimated social class rates represent genuine differences between 'E' and 'W', there could be a variety of possible explanations: diagnostic practice, short-term residence in 'W', foreign-born or foreign-culture immigration into 'W', 'drift' into labourers' jobs, local attitudes to Class V jobs, large proportions of single men or men living alone or in lodgings, differences in age composition for similar occupations in 'E' and 'W', could all contribute to the excess of 'W' over 'E' admission rates.

In an attempt to find whether differences in age-social-class composition contributed to the excess of first admissions from 'W', two series of population estimates were made, as already described. The "index" rates calculated from these hypothetical populations were extremely speculative, the more so because the number of first admissions in each age-social-class group was very small, and therefore no tables of these index rates are quoted.

The first series of estimates was made for "occupied" as compared with "unoccupied and retired" men in each age group; these might have revealed a significantly higher admission rate for unoccupied men in one or more age groups. However, this hypothesis was not supported by the index rates; indeed, for manic depressive reaction and for psychoneurosis, the rates for occupied men in 'W' appeared to be

FIG. 3.—First admission rates to mental hospitals of occupied men aged 15–59 yrs, in 'E' and 'W' boroughs of London, by diagnosis and social class, 1954–55.

higher than those for unoccupied men. Comparing 'E' and 'W' rates for occupied men, it would seem that occupied males aged 15–29 years in 'W' had a rather higher schizophrenia rate than the corresponding group in 'E', but at older ages the 'E' and 'W' rates appeared to be very similar.

The second series of estimates was made for the age-composition in each of the Social Class groups I–II, III, and IV–V in 'E' and 'W'; this might have revealed that the Class V excess in the 'W' rates was in reality a reflection of the younger age-composition of Class V, or conversely, that the apparent absence of a social class gradient in the 'E' rates was an artefact, due largely to, for example, a young Class III and an elderly Class V population. This hypothesis, however, was not confirmed by the index rates, from which no regular age-class trend in either 'E' or 'W' was disclosed. There were several age-social-class groups in which the 'W' rates

appeared to be rather higher than the 'E' rates, but these groups were not distributed in any orderly pattern and led to no conclusion.

(2) DEMOGRAPHIC AND SOCIAL FEATURES IN THE 'E' AND 'W' BOROUGHES

It has already been stated that various explanations could account for the apparent contradiction between the "social class" gradient in admission rates within each group of boroughs—particularly the Class V excess in 'W'—and the higher level of rates, particularly for schizophrenia, in the so-called Class I–II 'W' boroughs. Clearly the social class factors operate in a more complex manner than that of a one-dimensional or proportional relationship. To investigate the interaction of the various component factors in the "social complex" would require more

detailed information on each person admitted and more comparable information on the population in 'E' and 'W' than is at present available. There are, however, certain data available on 'E' and 'W' which suggest that 'W' should not be regarded as a "typically well-to-do" area, and that, in comparing the single dimension of occupational social class, important differences in composition and stability between 'E' and 'W' have not been taken into account.

POPULATION COMPOSITION.—As 'E' and 'W' were selected for their high proportions of men at opposite ends of the social class scale, it is of interest to compare each area with London as a whole. The distribution of occupied and retired men enumerated in the 1951 Census is shown in Table IV. 'E' did indeed have a high proportion of men in Classes IV and V, the excess in Class V relative to the London average being even greater than the excess in Class IV; at the same time, the relative deficit in Classes I and II was most marked in Class I. Conversely, 'W' had a greater excess relative to the London average in Class I than in Class II, and a greater deficit in Class V than in Class IV.

TABLE IV

SOCIAL CLASS DISTRIBUTION OF ENUMERATED MEN
(OCCUPIED AND RETIRED), CENSUS 1951

Boroughs	Percentage of Men (Occupied and Retired) in Social Class					Total
	I	II	III	IV	V	
'E'	0.7	6.7	50.0	15.4	27.2	100
	7.4			42.6		
'W'	12.3	21.1	44.3	10.4	11.9	100
	33.4			22.3		
London A.C.	4.0	13.0	54.2	11.9	16.9	100
	17.0			28.8		

Although, according to the occupations of the men enumerated in 'W', it appeared to be an "upper class" area, several reservations are necessary. First, 8 per cent. of the men enumerated in 'W' were not resident in the area; 'W' contains major railway stations and a large number of hotels, boarding and guest houses, lodgings, and hostels. More than half of London's hotels and boarding houses with ten or more rooms were in 'W'; and 'W' contained more than two-thirds of London's "visiting guests" and more than half of the "resident guests" in establishments of this size at the 1951 Census.

Secondly, the occupied and retired men (on whose occupations, present or past, the social class composition is based) should correspond with the total enumerated adult males, since non-residents as well as residents stated their occupations. In 'E' this was so; but in 'W' it would seem that 8 per cent. of the adult men had neither present nor past occupation, for the proportion of occupied and retired men was only 90 per cent. of the total adult males, and visitors from foreign or colonial countries or from the Commonwealth accounted for only 2 per cent. Though these proportions of non-resident and unoccupied men are not large enough to reverse the overall social class composition in 'W', they indicate that the "upper class" 'W' boroughs include a less settled population than the 'E' boroughs.

AGE AND SEX COMPOSITION.—Another aspect of the difference between 'E' and 'W' is visible in the sex and age distribution. In 'E' the sex ratio was 105 females to 100 males; in 'W' it was 132—a highly significant excess. Moreover, the 'E' population, especially the female, was significantly younger than the 'W' population. In 'E', 22 per cent. of the population were children under 15 years of age, and another 24 per cent. were young adults aged 15–29 years; in 'W', only 14 per cent. were children under 15 years of age and 22 per cent. were young adults (Table V, opposite). At age 30 and upwards, 'W' had higher proportions than 'E', and the divergence widened with increasing age, so that the elderly formed a significantly greater proportion in 'W' than in 'E'.

An overall excess of females over males is a normal demographic feature due to the greater mortality of men in the older age groups; in countries with low infant mortality and good public health services, there is normally an excess of males over females at ages below 50 years. A striking indication of the unusual sex ratio in 'W' in comparison with the normal pattern seen in 'E' is the distribution by age, illustrated in Fig. 4 (opposite).

In 'E' there were fewer females than males in the age groups below 50 years (except at ages of call-up for men), and with increasing age the female preponderance increased progressively, so that among the elderly the ratio was 132:100. In 'W' the female: male ratio for children under 15 years was similar to that in 'E', but at all higher ages the ratio, though distributed in similar pattern, was at a significantly higher level than in 'E'. Even at marriageable and reproductive ages, the excess of women in 'W' was marked; and among the elderly the ratio reached 184:100.

TABLE V

DEMOGRAPHIC AND SOCIAL CHARACTERISTICS IN 'E' AND 'W' BOROUGHES OF LONDON (CENSUS, 1951)

Characteristic				Boroughs	
				'E'	'W'
Total Population (all ages)	Sex Ratio (females per 100 males)			105	132
	Percentage of Population	aged 0-14 yrs .. .. .	.. .. .	22	14
		aged 15-29 yrs .. .. .	.. .. .	24	22
Single Persons aged 15-59 yrs	Sex Ratio (females per 100 males)			90	149
	Percentage of Population who were Single	aged 15-59 yrs	Male	34	38
			Female	30	43½
		aged 25-59 yrs	Male	21	27
			Female	17	35
Private Households	Percentage of Population	in Private Households .. .. .	.. .. .	96	86
		in Non-Private Households .. .. .	.. .. .	4	14
	One-Person Private Households	as Percentage of All Private Households .. .. .	.. .. .	16	32
		as Percentage of Population .. .. .	.. .. .	5	11½
	Two-Person Private Households as Percentage of All Private Households			27	31
Place of Birth	Percentage of Private Households having Married Couples as Heads			71	55
	Percentage of Population born outside United Kingdom and Ireland	Male .. .. .	.. .. .	6½	19
		Female .. .. .	.. .. .	5	17½
	Percentage of Population born in London	Male .. .. .	.. .. .	77	41
		Female .. .. .	.. .. .	79	36½

FIG. 4.—Sex ratio (females per 100 males) by age of all persons in 'E' and 'W' boroughs of London, 1951.

MARITAL STATUS.—In view of the high schizophrenia rates of first admission of 'W' women, and particularly the unusual rising age trend for women aged 30–59 years, the female:male preponderance warrants further scrutiny. Separate studies of the demographic patterns for single, married, widowed, and divorced persons showed that the age distribution of the married persons in 'W' was very similar to that in 'E'; and the proportions of widowed and divorced men and women, though slightly higher in

'W' than in 'E', did not account for the excess of women. This excess in 'W' was traceable entirely to single women, and was so great that, over the age range 15–59 years there were 149 single women to every 100 single men, whereas in 'E' the ratio averaged 90:100 (Fig. 5). Even at the modal age of marriage of women, 25–29 years, at which normally the lowest female:male ratio occurs, 'W' had more single women than men. At ages 45 and above, single women outnumbered single men by more than 2:1 the ratio rising to more than 3:1.

FIG. 5.—Sex ratio (single females per 100 single males) by age of single persons in 'E' and 'W' boroughs of London, 1951.

This remarkable preponderance of single women over single men would not in itself influence the population composition if single persons constituted a relatively small proportion of the total population. But this was by no means the case in the 'W' population, for single men as well as single women formed a significantly higher proportion than in the 'E' population; in 'E' 34 per cent. of the men and 30 per cent. of the women aged 15-59 years were single, but in 'W' 38 per cent. of the men and 43½ per cent. of the women in this age range were single. At ages below 25 years the proportions, as would be expected, were higher; in the age-range 25-59 years, however, the 'E'-'W' difference was even more marked, for in 'E' 21 per cent. of the men and 17 per cent. of the women were single, whereas in 'W' 27 per cent. of the men and 35 per cent. of the women were single (Table V). The difference in the proportion of single women is startling; it appears that in 'W' one woman in every three was single. Further study of the individual boroughs in 'W' disclosed that the female:male excess and the proportions of single women ranged very widely about the 'W' average; in Chelsea and in Hampstead particularly, the preponderance of women of 50 years and over and, among them, of single women was marked.

PRIVATE HOUSEHOLDS.—The Census Reports do not include information on the living circumstances of these single men and women in 'W', nor do they give direct data on people living alone. However, an index of persons living alone may be gained, first, from those in hotels, boarding-houses, and hostels, which are classified as "non-private households", and, secondly, from those private households which consist of one person only. (These data give only a minimum estimate of people living alone, since persons in lodgings, etc., are included in the private households in which they lodge.) In 'E', 96 per cent. of the population lived in private households and only 1 per cent. in "non-private households" (the remaining 3 per cent. being in hospitals, institutions, and the like). In 'W', only 86 per cent. of the population were in private households, and 11 per cent. were in "non-private households"; from other Census data, it would seem that the majority of those in non-private households were "resident guests" (approximately one-quarter being "visiting guests"). Other persons living alone were those forming one-person private households. In 'E' these comprised 16 per cent. of all private households, and these persons living alone constituted 5 per cent. of the population; in 'W' they were twice as numerous, comprising 32 per cent. of all private households, and forming 11½ per cent. of the population—one

person in every nine. Altogether, persons in non-private households and those in one-person private households totalled 6½ per cent. of the 'E' population as compared with 22½ per cent. of the 'W' population; and, as already mentioned, these figures exclude lodgers and other single persons within private households, and therefore give an underestimate of persons living alone.

A further indication of the relative absence of family life in the 'W' boroughs comes from the high proportion of two-person households; in 'W' these formed 31 per cent. of all households (as compared with 27 per cent. in 'E'). Adding one-person and two-person households together, 63 per cent. (nearly two in every three) in 'W' were of this small size, so that only one in three private households *could* have formed a "family" in the usual sense (Table V).

Another aspect of family structure is the status of the head of household. Two categories are given in Census Reports: the "non-married" heads include single, widowed, divorced, or separated persons; the "married" heads include those still married during the Census, and therefore indicate that the household core was a married couple. In 'E', 71 per cent. of the private households had married heads, whereas in 'W' only 55 per cent. of the private households had married heads. It would appear, therefore, that the households which typify a settled family life were considerably less common in 'W' than in 'E', and this fact, together with the relatively high proportion in 'W' who live in non-private households, suggests factors of impermanence or instability in at least part of the 'W' population.

PLACE OF BIRTH.—Space does not permit discussion of the many differences in age and status of heads of 'E' and 'W' households, which further emphasize the dissimilarity between 'E' and 'W' families. One other feature relating to individuals—their place of origin—should be considered in view of the known studies on mental health and migration. In 'E', 6½ per cent. of the males and 5 per cent. of the females were born outside the United Kingdom or Ireland; in 'W', 19 per cent. of males and 17½ per cent. of females were born abroad. In most boroughs the foreign-born men were relatively more numerous than the foreign-born women, but in Chelsea and Hampstead the percentage of foreign-born women exceeded that of men.

Another aspect of geographical stability, the proportion of the population born in London itself, again reveals the dissimilarity between 'E' and 'W'. In 'E', 77 per cent. of males and 79 per cent. of females were London-born; in 'W' only 41 per cent.

of males and 36½ per cent. of females were London-born. This is perhaps another indication of a transient section within the 'W' population.

DISCUSSION

The study of rates of first admission to mental hospitals from 'E' and 'W' was an attempt to determine whether the excess of hospital patients—and the marked excess of schizophrenics—from Social Class V shown by the Registrar General was a true measure of higher inception rates in Class V. The hypothesis was that, though part of the class gradient was probably a reflection of prevalence, there was a genuine class gradient in inception of mental illness. A further hypothesis was implicit in the selection of the 'E' and 'W' boroughs and it was thought that 'E', with its predominance of men in Class IV and Class V occupations, might as an area have higher inception rates than 'W', with its high proportion of men in Social Classes I and II.

The rates of first admission actually found among men in the age range 15–59 years support the hypothesis that there is a real "social class" gradient in the inception of mental illness. Within the 'E' boroughs the rise in first admission rates with the fall in social class was evident for manic depressive psychosis and for all diagnoses together; and within the 'W' boroughs there was an even clearer social class gradient for schizophrenia than for manic depressive psychosis, with a marked rise in rates for Class V. This gradient is similar to, though not as steep as, that for total admission rates shown in the Registrar General's report on mental health in 1950–51: for men aged 20 years and over, the three diagnoses investigated—schizophrenia, manic depressive psychosis, and psychoneuroses—together gave a total admission rate of 6·5 per 10,000 in Classes I–II rising to 17·5 in Class V. For schizophrenia alone, the total admission rate rose from 1·6 per 10,000 in Classes I–II to 8·0 in Class V. The similarity of these total admission rates reported by the Registrar General to the first admission rates found in 'E' and 'W' suggests that the steeper gradient in total admission rates reflected social class differences in re-admissions.

The further hypothesis that the class gradient would be reflected in higher first admission rates in the Class IV–V 'E' boroughs than in the well-to-do 'W' boroughs was to some extent confirmed for the psychoses of the elderly but has been clearly contradicted for the age range 15–59 years. 'W' had higher rates than 'E' for each diagnosis at ages 15–59 and particularly for schizophrenia, and the rates for schizophrenia among women in 'W' were markedly

discrepant. Such discrepancies require explanation or at least interpretation. The data presented on certain characteristics of the 'E' and 'W' populations show that, in addition to "social class" differences, there are significant differences in a number of features usually considered pertinent to hospitalization for mental illness. 'E' and 'W' differ radically in age and sex composition, in marital state, in family and household structure, in number of persons living alone, and in place of origin of the population. With such deep dissimilarities between the two areas, occupational "class" composition is an over-simplified index which does not fully describe each population, and a simple comparison of area rates based only on occupational "class" may not give a true comparison of like with like. It is of interest to observe that, in his study of suicide in London, Sainsbury (1955) noted ten boroughs as having exceptionally high suicide rates, and considered features of social disorganization to be associated; among these ten boroughs are all five of the 'W' group investigated in the present study.

Another criticism of occupation as an index of social class must be considered. The "social class" of an occupation, in a population covering a wide range of occupations of many levels of skill, may be a meaningful index to discriminate between persons within that population. Yet within a community with a much narrower range of occupations of more uniform social status, the broad classification of occupations may have little discriminative power, and a different classification based on the local tradition and value system may be needed to differentiate between the "social classes" within that community. It may be that, in an area like 'E', the prestige and mode of life of the clerk set him as much apart from the casual labourer as the prestige and mode of life of the professional man in 'W' set him apart from the skilled manual worker. If this is so, a full understanding of the social class gradient in schizophrenia will depend on intensive studies of communities with their own traditions, values, and tolerance of mental illness rather than on national or regional data on heterogeneous populations and the selection of only one factor in the social complex.

SUMMARY

First admissions to mental hospitals in the years 1954 and 1955 were studied for a group of West London boroughs and a group of East London boroughs, in order to investigate whether the "social class" gradient among mental hospital in-patients in England and Wales—particularly among schizophrenics—was due to higher inception rates or was

only a reflection of a higher prevalence in Social Class V. The West London boroughs were outstanding in the 1951 Census for their high proportions of enumerated men in Social Classes I and II, whereas the East London boroughs were outstanding for their high proportions of men in Social Classes IV and V.

The findings within both the 'E' boroughs and the 'W' boroughs among men aged 15-59 years indicate that there is a real "social class" gradient in the inception as well as in the prevalence of mental illness. Within the 'W' boroughs there was a particularly marked class gradient in first admission rates for schizophrenic disorders. Yet the apparently well-to-do 'W' area had higher rates of first admission of persons aged 15-59 than did the lower class 'E' boroughs, particularly for schizophrenic disorders and particularly among older women.

Data on other social and demographic factors which bear upon mental illness and hospitalization, such as household structure, marital state, and number of persons living alone, indicate that the 'W' boroughs differ radically from the 'E' boroughs, not only in "social class" but also in family life and in social and geographical stability. It is suggested that, when several important features differ so deeply between areas, comparison by the single index of

"social class" is not meaningful; further, the use of occupation as an index of social class in areas of different status or different traditions is open to criticism.

REFERENCES

- Belknap, I., and Jaco, E. G. (1953). "Epidemiology of Mental Disorders in a Political Type City, 1946-52". Milbank Memorial Fund, New York.
- Clark, R. E. (1948). *Amer. sociol. Rev.*, 13, 325.
- (1949). *Amer. J. Sociol.*, 54, 433.
- Faris, R. E. L., and Dunham, H. W. (1939). "Mental Disorders in Urban Areas". University of Chicago Press.
- Hare, E. H. (1955). *Brit. J. prev. soc. Med.*, 9, 191.
- (1956). *J. ment. Sci.*, 102, 349.
- Hollingshead, A. B., and Redlich, F. C. (1954). *Amer. J. Psychiat.*, 110, 695.
- (1955). *Ibid.*, 112, 179.
- Malzberg, B. (1956a). *J. nerv. ment. Dis.*, 123, 257.
- (1956b). *Ment. Hyg.*, 40, 177.
- Ødegaard, Ø. (1956). *Int. J. social Psychiat.*, 2, 85.
- General Register Office. (1951). "Classification of Occupations, 1950". H.M.S.O., London.
- (1952). "Census 1951. Great Britain One per cent. Sample Tables". H.M.S.O., London.
- (1953). "Census 1951. England and Wales County Report: London". H.M.S.O., London.
- (1956). "Census 1951. England and Wales Occupation Tables". H.M.S.O., London.
- Registrar General. (1953). "Statistical Review of England and Wales for 1949. Supplement on General Morbidity, Cancer and Mental Health". H.M.S.O., London.
- (1955). "Statistical Review of England and Wales for 1950-51. Supplement on General Morbidity, Cancer and Mental Health". H.M.S.O., London.
- Sainsbury, P. (1955). "Suicide in London", Maudsley Monograph No. 1. Chapman and Hall, London.
- Schroeder, C. W. (1942). *Amer. J. Sociol.*, 48, 40.
- Lemkau, P., Tietze, C., and Cooper, M. (1941). *Ment. Hyg.*, 25, 624.