ENQUIRIES INTO MENTAL DISORDER IN OLD AGE

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Statistical data from different parts of the world all tell a similar tale of a rapidly rising rate of admission of old people to mental hospitals.⁴⁰ Although it has been often claimed that the stresses of modern life involve an all round increase in the incidence of mental illness, a careful investigation of the changes in first-admission rate to mental hospital in Massachusetts by Goldhamer and Marshall⁸ has failed to confirm that mental disorder has become any more common under the age of 50 during the past century. However, above this age, an unequivocal rise in the hazard of being admitted to a mental hospital was found. In fact, the rate of increase in some parts of the world has been so rapid among old people that, to some extent, the change must be attributed to a decreased viability of the aged in the community, rather than an actual increase in the amount of mental illness. It is well known that the rate of hospitalisation is higher among certain individuals, namely the economically under-privileged and less well educated sections of the community and those exposed to the effects of social isolation.^{28, 9} These difficulties of the aged are often attributed to decline in filial piety, but the studies of Townsend³⁸ and others have revealed that in many working-class areas, strong and lasting bonds of affection and mutual support continue to survive between the aged and their children, and regular contacts are the general rule. But the increased mobility of families, both in a social and geographical sense, is probably serving to increase the size of the marginal group of old people whose survival in the community is a precarious and insecure one and who tend in case of illness or growing infirmity, to become the responsibility of the Health and Welfare Services.

Functional and Organic Psychoses

A great deal could doubtless be done to stem the tide of admissions to mental hospital and to improve the predicament of the aged in the community if such facts as have accumulated about the

social aspects of the problem could be acted upon. But the problems in this field are the consequences neither of ageing nor of unfavourable social circumstances alone. In psychiatry, as in general medicine, we have learnt that much that we were accustomed to attribute to senescence results from specific disease processes in a new guise moulded by the physical and psychological effects of the senium. In the older psychiatric literature, mental illness was largely identified with the effects of degenerative changes in the cells or blood vessels of the brain. Some degree of intellectual decline is indeed universal with advancing chronological age and it is not surprising therefore that degenerative disease came to be accepted as the main factor in the causation of mental disturbance among the aged. An interesting overlap between organic and functional forms of mental disorder exists even in early life. Schizophrenic or depressive symptoms occur most commonly in the absence of any gross cerebral disease, but they are also to be found in association with head injury, cerebral tumour,³⁹ general paralysis of the insane,^{25, 20} and toxic states,^{1, 4} as well as physical illness outside the brain³.

This borderland in which functional mental illnesses are associated with and seemingly partly caused by gross cerebral lesions, has yet to be fully explored. Its bearing on the aetiological problems of the functional psychiatric disorders of early life has probably been underestimated. The tendency has been until recently to dismiss such phenomena as due to the fortuitous association of two relatively distinct disease processes, cerebral damage caused for example by a head injury, or toxin such as alcohol, or epilepsy, on the one hand and a genetic predisposition to manic-depressive or schizophrenic illness on the other. However, recent observations in relation to a number of cerebral diseases have made such explanations untenable.^{36, 1, 18, 11}

Among the aged, nevertheless, the extent of this overlap between the functional and organic forms

FIGS. 1 and 2.—Pattern of outcome of patients aged 60 years and over admitted to mental hospital. The proportion of patients discharged, in-patient and dead, as ascertained by follow-up study at six months and two years after admission, is shown.

of mental illness has probably been over-estimated and cerebral disease been allocated an altogether too large share in the causation of depressive and paranoid symptoms, for example. Thus it has been shown that in the absence of focal neurological signs illnesses with predominantly depressive or paranoid features, or delirious states, show a pattern of outcome different from that of the two main groups of cerebral degeneration in old age—the senile and arteriosclerotic psychoses—when

the patients are followed up at six months, two years and seven to eight years after admission to hospital^{32, 29, 17} (Figs. 1 and 2). In a recent investigation by Kay in Stockholm, an almost complete follow-up was achieved, in that 236 patients were traced almost without exception and, at the end of the investigation which was carried out after a minimal interval of 19 years after admission, only 17 of the patients were alive. The relative independence of the depressive and paranoid

groups from dementias of late life was confirmed. Thus while the duration of life among patients with senile and arteriosclerotic psychosis was only one-fifth of that depicted for the average population of Stockholm, of corresponding age, the paranoid states were found to have had an almost normal life-span. The affective cases with onset late in life had survived for about seven-tenths of the normal life-span but the increased mortality was due in the main to various kinds of somatic disease to which reference will be made later; dementia and signs of cerebral disease very rarely developed. In the paranoid cases also the final clinical picture had more in common with schizophrenic personality change than organic dementia, and was observed as a rule only at a very advanced age, after many years' illness.

Over short periods of observation of two to three years after admission, patients with delirium or confusion also do considerably better than those with cerebral degenerative disease, and although many of them suffer from inherently fatal conditions, such as cardiac decompensation or chronic respiratory disease with cardiac failure, approximately 50 per cent. are found to be alive when followed up two years after entry into hospital.

Psychological Tests, the E.E.G. and Physical Illness

The ultimate purpose of nosographic studies is to shed light upon the aetiological basis of illness. Further enquiries have shown that in addition to differences in clinical picture and pattern of outcome, the groups described above are differentiated from each other by performances in psychological tests,^{30, 13} electroencephalographic findings,³³ incidence of physical illness and recorded causes of death at post-mortem.¹⁶

Psychological test performance and E.E.G. findings provide useful adjuncts in investigation, particularly in borderline cases, or when an adequate history of the illness cannot be obtained. For example, high voltage rhythmic slow activity in the E.E.G. is found almost exclusively in cases with an acute disturbance of cerebral function (either on account of some systemic or metabolic disturbance of recent onset, or a recent cerebral lesion) and may prompt a search for specific physical causes in patients reduced by an unsuspected acute infection or heart failure to a seemingly moribund and demented state when the condition is, in fact, a recent and reversible one.

It is of interest that the incidence, on admission of clear-cut physical illness, other than presumed degenerative disease in the brain, bears very little relationship to the mortality in the different groups. Thus, among the paraphrenics and

manic-depressives, the incidence of identifiable physical illness was considerably higher than in the groups with cerebral disease. Yet the former showed a relatively low mortality after two years of observation, whereas among the latter, well over 70 per cent. of the cases were dead at this time. The incidence of physical illness is highest of all in the acute confusional or delirious group in which over 85 per cent. of cases are found to have some specific physical disease. Yet these patients have a mortality intermediate between that of the functional groups and those with unequivocal cerebral disease. Moreover, in a high proportion of the senile and arteriosclerotic cases, death results from intercurrent infections, accidental fractures or trivial causes, such as falls, and the death certificate tends to cite vague, non-specific conditions such as 'senility', 'myocardial degeneration' and 'generalized arteriosclerosis.' Such vague causes had been cited most commonly among patients with senile psychosis (84 per cent.) and least often among the 'functional' groups (25 per cent.); the delirious states (with 45 per cent.) and arteriosclerotics (with 56 per cent.) occupying an intermediate position. It would seem therefore that degenerative disease in the brain (with or without vascular lesions) is the most potent cause of death among old people with mental disorder. This conclusion may appear to be stating the obvious but we understand virtually nothing of the reasons for the rapidly fatal character of cerebral degenerative disease. The decline in vitality which is associated with atrophy of the cerebral cortex, may have some connection with the high mortality also found among mental defectives, particularly those in the lower grades.^{35, 12} The phenomenon is clearly of a general biological interest and may well have some relevance for the problem of senescence.

The Neuropathology of Old Age Psychoses

In an investigation of 300 consecutive brains from patients who had died in a mental hospital, Corsellis⁵ has recently shown that the neuropathological changes in the brain show marked differences in the five groups of cases. Thus, whereas in the great majority of affective and paraphrenic cases there were neither senile plaques nor neurofibrillary changes, nor microscopic evidence of vascular disease, or only a slight degree of change of either or both kinds, in the great majority of cases of senile psychosis, senile plaques or neurofibrils had replaced cerebral neurones to a severe or moderate degree, whereas in arteriosclerotic psychosis, vascular changes of a severe or moderate kind were present. Nevertheless in a small proportion of cases the neuropathological findings appeared to be discordant

from the clinical picture; these cases clearly deserve further study.

It has been suspected for some time that deficiencies of memory and other intellectual changes may be partly related to lesions in the mammillary bodies and other parts of the diencephalon.⁷ These sub-cortical structures need therefore to be examined, as well as the cortex, in cases where the criteria for the diagnosis of dementia have been well defined, strictly applied and supported by results of psychological tests.

In cerebral vascular disease, the recent work of Hutchinson and Yates¹⁴ has drawn attention to disease of the extra-cerebral vessels, the basilar, vertebral and internal carotid arteries, as a cause of cerebral symptoms. These observations should be repeated in a representative material coming to post-mortem in mental hospitals, so that the relative frequency of such changes in the different types of mental disorder in old age can be ascertained and the results compared with control cases studied at post-mortem in a general hospital. It is hoped to initiate such studies in the near future.

Mental Disease in early and late life

There is another form of comparison that clearly requires to be made—that between patients who have fallen ill in early and in late life. Can we obtain an insight into the factors which decide that some patients succumb to mental illness in early life, while others escape until old age? Clearly this question is of much more than theoretical interest. If we could postpone the manifestation of schizophrenia until after the age of 60, for example, a very large part of the chronic population of mental hospitals would disappear. In the major psychoses, one mode of approach to this problem is to raise the question as to whether the relative importance of hereditary and environmental factors in the causation of mental disorder remains constant throughout life. Recent investigations have thrown some interesting light on this problem.

Kay¹⁵ has compared the morbid risk for *affective disorder* among the relatives of patients with a first appearance of affective disorder in late life, with the risk in relatives of patients with an earlier attack. He found that the near relatives of the cases of late onset showed a morbid risk of approximately 4.5 per cent., which was higher than that expected for the population at large, but considerably lower than that among the cases of early onset (see table). A similar observation was made by Stenstedt.³⁷

The genetic factors would appear therefore to be less important in causing the depressions of late life than those of early life. On the other hand,

MORBIDITY RISKS AMONG FIRST-DEGREE RELATIVES
MINIMAL AND MAXIMAL FIGURES

	Affective Disorder*	Schizophrenia†
Early affective group‡ ...	10.0–12.7 ± 2.1	0.6 ± 0.4
Late affective group	3.5–5.7 ± 1.4	2.5–4.2 ± 1.3
Paranoid group ...	2.9–3.3 ± 1.1	3.6–5.6 ± 1.7
General population	1.0–3.0	1.6

* Weinberg,⁴¹ risk-period 20–60.

† Weinberg,⁴¹ risk-period 20–50. (Morbidity risks for schizophrenia exclude parents.)

‡ These patients had had one or more attacks before the age of 60.

exogenous and environmental factors loom correspondingly larger. Roth and Kay³¹ have shown that a significantly higher proportion of affectives of late onset suffer from a physical illness which has an intimate relationship with the onset of the mental disorder. Kay¹⁵ showed that acute physical illness and other circumstances such as bereavement, psychological and economic difficulties had played a part in precipitating the illness in three-quarters of the late onset cases, as compared with half of the early onset group and one-quarter of the paranoid cases. Moreover, serious progressive and disabling physical illness was far commoner in the late onset group and included ulcerative colitis, paralysis agitans, loss of sight and intermittent claudication. Kay is inclined to conclude that there are two types of depressive illness appearing for the first time in old age; in one, classical features of retardation, guilt and self-accusation are present and in clinical picture and underlying genetic factors these conditions are uniform with manic-depressive psychosis. In the other group, genetic factors are relatively unimportant, and physical illness is much more common; the depression has a far less specific character and may be regarded as symptomatic or reactive. If the existence of this latter group could be substantiated it would clearly be a relatively new entity, in that a psychosis reactive to stress and yet appearing for the first time in old age is not readily accommodated within the concept of neurotic depression. However, there is evidence to suggest that neurotic breakdown occurring *de novo* in old age is not as rare as formerly supposed.

These affective disorders provide a valuable field for the investigation of yet another major problem in the field of psychiatry, the relationship between physical illness and the mental disorders of various kinds, not only delirious states, but the neurasthenic, depressive, manic, paranoid and catatonic pictures that are described among the so-called 'symptomatic psychoses'.²¹ Opinions

have varied as to whether the physical illness merely aggravates a pre-existing disposition, or is, in fact, a cause of the associated mental disorders in a much more real sense. The psychoses of the aged provide an ideal field for tackling this question which may have a bearing on the broader problems of causation among the functional mental disorders as a whole.

Kay has also investigated the genetic basis of *paraphrenia of late life*. Now the status of the paranoid psychoses with respect to schizophrenia has been a subject of controversy for a considerable time. Originally differentiated from the schizophrenics by Kraepelin, they were reinstated within the group by Bleuler,² and a number of investigations have suggested that the end result in these psychoses tended to be similar to schizophrenic personality deterioration. Hence, tentatively, late paraphrenia may be regarded as the form of manifestation of schizophrenia in late life. But there are certain very obvious differences for whereas in the second to the fourth decades schizophrenia is predominantly a disease of men, late life paraphrenia is almost exclusively a mental disorder of women. Kay¹⁵ has found that although at a very advanced age these cases manifest a picture of deterioration similar to that of schizophrenia, the morbid risk for this disease among first-degree relatives is only slightly above that for the normal population. Once again, we have the same pattern of a major psychosis in which heredity seems less important as a cause in late than in early life.

The Role of Social Factors in Causation: 'Social Isolation'

The obvious question which arises is whether a correspondingly greater significance may be attributed to environmental and exogenous factors in paraphrenia as in the case of affective psychoses of late onset. There are some observations which suggest that this may be the case. Thus it has been found that there is a striking predominance of unmarried women among this late life paraphrenic group suggesting that the illness may be wholly or in part the result of loneliness and emotional deprivation.

This is part of a much larger problem that is under active investigation in a number of fields of psychiatry at the present time, namely the role of social factors in mental illness. Now it is known from several sources that admission rates for schizophrenia are relatively high in social class V, which comprises labourers and the unemployed, whereas manic-depressive disorder for instance shows no marked association with social class.^{26, 27} But another factor is 'social isolation' by which is meant a lack of ties based on common aims,

beliefs and customs, binding an individual to the social group, and not merely isolation in a physical sense. This factor is independent of social class. In schizophrenia, its importance was first advanced by Faris and Dunham⁶ who found, in Chicago, that a disproportionately large number of hospitalized schizophrenics not only belonged to the lowest social class, but came from the central or 'lodging-house areas' of the city where social cohesion was minimal. In suicide the pioneer observations of Durkheim and the recent work of Sainsbury³⁴ accord to isolation itself and other factors imposing a solitary and impersonal mode of life, rather than material adversity, the main role in causation; Sainsbury in fact found some of the highest rates in London boroughs, such as Chelsea, Hampstead and St. Marylebone, where the actual living conditions are good. Some such factor seems likely to contribute also to the high incidence of mental illness found among immigrants who live in an alien culture,^{22, 19} and among single people in general. Conversely, the fall in admission rate to mental hospital and in the incidence of attempted and consummated suicide during war, which has frequently been recorded, is perhaps attributable to greater social cohesion in times of national crisis. Yet the theory that isolation is a cause of mental illness is only one possible explanation of the facts.

Social Drift and Selection by Occupation and by Marriage

Protagonists of the isolationist theory discount the idea that mentally sick individuals may tend to drift of their own accord to areas of high social mobility and disorganisation. But Odegard^{22, 22, 24} has, over some decades, produced data in favour of the view that the high incidence of mental disorder among the single and in certain occupational groups may be attributed to a process of social selection which operates to confine those with deviant personality traits to certain occupations and to the single state. Individuals with such personality traits are also especially prone to migrate.²² The social circumstances and the mental illness were both the results of personality deviation. Social isolation was thus an effect and not a cause of mental illness.

The observations made on the paraphrenias of old age also throw a certain amount of light on the roles of predisposition and of social circumstance. It seems unlikely, at first sight, that individuals falling ill for the first time in old age, owe their single state to personality difficulties that are also related to the illness. But 15 of the 33 female cases about whom information was available, i.e. 45 per cent., were in fact described in terms such as suspicious, peculiar, cold, hard, arrogant, jealous,

or shy and solitary, and the incidence of such schizoid traits was significantly less among the affective disorders (18 per cent.). Adherence to minority religious groups was also much commoner among the paranoid cases. Of nine males, six were known to have been solitary, homosexual, criminal or vagrant. Another interesting reflection on the personality of the women who constituted the majority of the cases, is that over one-quarter had had illegitimate children, although only two later married the fathers, while among the affective groups nearly all of a much smaller number with illegitimate children subsequently married. Although these observations suggest that the isolation and eccentricity is due to the anomalies of personality preceding but related to the schizophrenic breakdown in old age, there are some data which suggest that isolation is at least a contributory cause of the mental illness. Thus deafness is relatively common among these patients; in others, a solitary state appears to have been enforced by external circumstances, while there are others still in whom exogenous factors appear of importance for the development of the psychotic state. Hence the loneliness and hardship which is endured by the aged spinster is hardly likely to be wholly unconnected with the causation of illness in these patients. That self-segregation, due to a latent predisposition to illness, is the greater part of the explanation of the seclusion of the schizophrenic, but that a definite though smaller role was played by enforced isolation, was also concluded by Hare¹⁰ in his study of mental health in Bristol. The isolationist hypothesis is of much more than theoretical importance since, if confirmed, it could conceivably lead to prophylactic measures.

The paranoid psychoses of old age lend themselves particularly well to the study and investigation of this problem because of their relative homogeneity and the possibility of obtaining information about the greater part of a lifetime, during which some kind of social adjustment was achieved and a degree of personality integration maintained. Even if the majority of these individuals have to be regarded as schizoid personalities, we may learn something about the way in which such individuals succeed in avoiding total breakdown and admission to mental hospital during the greater part of their life. Moreover as it has proved so difficult to disentangle the network of cause and effect in all the disorders in which the isolationist hypothesis has been proposed, it might well be fruitful to examine these conditions as a group with a combination of statistical and individual psychological studies which might pave the way for a fresh approach to the problem.

As a starting point for statistical investigations a

survey of all mental hospital admissions in Northumberland and part of Durham during 1957-59 has been carried out. The population at risk was over one million, and, for 1957, single admissions numbered 2,437. One of the aims has been to ascertain the distribution of social class in the diagnostic groups, and further, to attempt to shed light on the relative importance of 'isolation' versus 'drift' by examining the social status of the families of patients. For this purpose the occupations of the fathers have been systematically recorded. If drift down the social scale has occurred then the social status of, for instance, schizophrenic patients would tend to be lower than that of their parents; whereas if patients of low social standing are found to come from families as needy as themselves, this would be some evidence for the environmental hypothesis. Preliminary results, which are provisional only, suggest that both schizophrenics and their families belong relatively more often than most other groups to low occupational strata. In this respect, however, they resemble the group of psychopathic personalities.

This problem is being further investigated by studies into the morbid risk of mental illness in the families of schizophrenics coming from different social levels.

If the excess of cases in social class V is due to the fact that the adverse environmental conditions which play a part in the causation of schizophrenia are more prevalent in this class than in higher social strata, the morbid risk of mental illness in the families of schizophrenics in social class V ought to be relatively low. Conversely if the comparative immunity of social classes I and II is due to favourable environmental conditions, those who fall ill should be strongly predisposed by heredity, and morbid risks among the relatives ought to be high. However, it is expected that detailed studies of the heredity and environment in family circumstances of small groups of patients will be required to supplement such investigations before any conclusions can be drawn.

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