THE ELDERLY AT HOME: A LONGITUDINAL STUDY

by

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SUMMARY

The Elderly at Home: A Longitudinal Study

The 20th century has seen a major change in the age structure in most countries of the western world. Due to improved medical care the consequent decrease in mortality rates has resulted in an increase in the population in general, and in the aged in particular. The recent unprecedented interest in the health and welfare of the elderly at home is due in part to the realisation that the medical and social care of elderly unfit people will continue to make ever-increasing demands on our resources of money, time and professional skill.

The present work reports on a survey (1969-1971) and its follow-up three years later (1972-1974) of 300 elderly people aged sixty-five years and over, living in their own homes. It was intended that this investigation would complement and supplement information from previous studies; that this survey would provide details of the psychiatric status of the subjects as well as normative data regarding their performance on simple psychometric tests and that the follow-up survey would indicate which characteristics of the subjects at first survey were associated with mortality within a three year period.

Six general practices were chosen at random from two adjacent postal areas in Glasgow which were in socio-economic contrast to each other. From the lists maintained by the Executive Council, Glasgow of names and addresses of elderly National Health Service patients, a stratified random sample was drawn at three monthly intervals until 300 subjects had co-operated in the survey. Medical, psychiatric and social histories were taken during semi-structured interviews conducted by the author in the subjects' own homes and complete physical examinations and assessments of nutritional intake status were made in the course of the parent survey by survey colleagues. The author's psychiatric assessment of each of the 300 subjects was made in the consideration of all available data. This data was manually analysed. The semi-structured interview technique was used in the collection of data in

the follow-up survey. The data from this part of the study was analysed by the assistance of a computer.

The results suggested that there was a high prevalence rate of conspicuous psychiatric illness in the elderly, with an increase in the prevalence of these diseases with increasing age.

Those subjects mildly affected by organic brain syndrome were able to cope with their affairs whereas those moderately affected were in various stages of dependency. Severe intellectual impairment was rarely encountered since the accompanying deterioration in behaviour is less tolerated by a household and more easily recognised by medical practitioners.

Normative data are given for the performance scores on the psychometric tests of the Coloured Progressive Matrices (Raven 1965), the Mill Hill Vocabulary (Short Version) (Raven 1958) and a simple Memory and Information test. These data are displayed in quinquennial age groups.

It was found that self-report inventories such as the Maudsley Personality Inventory require some adaptation in the wording for the elderly in order to avoid ambiguity in interpretation.

Those subjects currently married at the time of interview provided information with regard to their attitudes to marriage, their sleeping arrangements and frequencies of coition.

It was found at the follow-up that 194 subjects were available for re-interview at home and of these 181 (93%) were re-visited by the author.

No difference in the proportion of those subjects surviving and those subjects not surviving after three years was found when allowing for age, sex, marital status, social class, the presence of inadequacies in dietary intake of calories, protein, potassium, calcium, thiamine, riboflavine, nicotinic acid, vitamin C, vitamin D, vitamin B12 and folate deficiency, but significant differences were found in the proportion of those subjects not surviving after three years when the following characteristics were considered: smoking habits, limitation of mobility,

the presence of physical disability, arteriosclerotic, nervous systemic or psychiatric disease, and low scores on the short term and calculation items on the Memory and Information test. The common factor in these significant characteristics appears to be arteriosclerotic in origin.

Family doctors are known to be aware of about 50 per cent of the psychiatric disorders in their elderly patients and very few of the milder cases receive any form of treatment or support, which means that elderly patients tend to be sent for specialist care only late in their illness with requests for in-patient care rather than curative treatment. This survey supports those findings.

The fact that the health of the elderly person concerns not only the immediate circle of relations and close acquaintances but also the wider community has important consequences for our medical and social services.

Lines of enquiry such as follow-up studies may provide some guidance in delineating the conditions under which the slow, subtle change from normality to abnormality takes place.

INTRODUCTION

Aims and Perspective

We live in a society where, in the field of geriatrics, high expectations are inevitably replaced by deferred hopes. On the one hand there is a common desire to provide appropriate medical care, effective personal social services, and extensive assistance by voluntary agencies for the elderly in the community and, on the other, an acute awareness of the limitations of our resources of money, time and professional skills. The gap between what is desirable and that which can be reasonably fulfilled will always remain wide. This is especially the case of the elderly person because of the comprehensive and complex character of his situation. Nevertheless, this gap can be narrowed at all levels of community care for the elderly by a process of decision-making which is based on a combination of empirical knowledge, rational judgements, intuition and the personal and group experience of those involved in such care. Even these formidable requirements are not sufficient if there is an absence of proper respect for persons and a compassionate approach to the situation of the elderly upon which any medical or social enterprise must ultimately depend. Given the presence of such respect and compassion it is still necessary to base our decisions upon the best knowledge available because it is now recognised that the study of hospital populations, for example, is an incomplete method of discovering the medical and social needs of either the community as a whole or, in particular, of elderly people (i.e. those of 65 years and over) who are virtually the "retired" part of our population, owing to the selection factors which occur.

Such knowledge is essential, since without such information we are ignorant of the extent of the problems in the elderly community and impotent to plan rationally or utilise existing services to cope

with the problems. This knowledge must rest on the basic data available about the number of people at risk and the incidence and prevalence of the medical and psycho-social problems facing the aged.

Such data is usually survey-based. It is possible to elicit epidemiological information and normative data for a problematic area which can be of considerable assistance in an effort to understand basic pathological processes and their relation to social factors with obvious relevance to the problems of ageing in a community. This, in turn, may help us to solve those problems associated with late middle life, pre- and post retirement and establish some guide lines for action towards the establishment of a comprehensive and preventive geriatric service for the future.

Furthermore it is not unrealistic to suppose that early diagnosis of these problems associated with ageing may lead to further investigations as to how the affected elderly person might best be supported within his own home or how his problems whether physical, psychiatric or psycho-social, might be alleviated and halted by the intervention of various agencies at a particular critical stage of the disordering process.

ORIGINAL STUDY (1969 - 1971)

In 1969 the Department of Geriatric Medicine of the University of Glasgow conducted a survey of four aspects of the health and welfare of elderly people which consisted of the examination of their physical and mental health together with a dietetic and social evaluation of 300 elderly persons living at home. The present study is focussed on those aspects of mental health related to the survey as a whole.

The aims of this part of the study of these elderly people at home were firstly to investigate the mental health of a random sample of 300 elderly living in their own homes. Secondly, to determine the prevalence rate for psychiatric disturbance and relate it to the findings of other researchers in studies of the over sixty-fives. Thirdly, to test and assess the efficiency of various psychometric, psychological and psychiatric tests which might be of use in large scale screening procedures of elderly people in the community. Fourthly, to examine the relationship between mental state and various aspects of health and diet of these elderly people.

FOLLOW-UP STUDY (1971 - 1974)

In the longitudinal part of the study the aim was to revisit these subjects not less than three years after the original interview and examination. This was in order to note mortality, morbidity, psycho-social alterations and changes in performance on the psychometric test battery of the original sample.

REVIEW OF RELEVANT PAST WORK

Historically, the mal-functioning in any parameter whether physical, mental or social, of elderly persons has been ascribed to 'senility' (senile change or process) or simply 'old age'. This has been especially true, in the past, of the psychiatric disorders as they occur in old age.

Morbid changes which occur in the mental faculties in old age blend so imperceptibly with the senescence of all persons who have survived into old age that it is not surprising that the literature upon this subject is comparatively meagre.

Among the ancient physicians whose attention was directed to those mental phenomena attending the close of life, Aretaeus (30 - 90 AD) remarks that "mental decay is a calamity of old age which is without intermittance and incurable".

Rhazes (860 - 930 AD) refers to a melancholy which is an inevitable event in the lives of old and decrepit persons.

Several centuries later Plater (1536 - 1614) noted the defective recent memory of some of his elderly patients.

Esquirol's 'Traite des Maladies Mentales' (1838) appears to be the first publication in which a comprehensive description of the psychiatric deviations associated with senile dementia was attempted. Even then, "demence senile" emerged as a very vague, all-embracing concept which included a miscellany of disorders found in the aged. A further descriptive exposition of the period was that of Pritchard (1842) who also made note of these age-related changes in mental function and referred to them as "senile decay".

During the next 50 years occasional studies of senile psychoses presented additional details which made the clinical picture more complete but no real advance was made in the understanding of these disorders until the end of the 19th century.

As it will have been observed, the concept of 'senile dementia' has seen long service both in the clinical and literary fields. It has been employed in an ill-defined and over-inclusive fashion, and its development has often been shrouded by the use of ambiguous and emotional language.

The harbinger of the formal classification of mental disorders (Griesinger, 1845: trans. 1862) included under a general label of 'states of mental weakness', a sub-classification of 'apathetic dementia' and considered senile dementia to be an example of this.

Initially, psychiatric reference to this disorder was purely descriptive as the comprehensive review of Alexander (1971) has shown but with the important advances in neuropathology at the beginning of the present century, aetiological considerations assumed a preponderance.

However, as far back as the mid- 19th century Griesinger (1845) and the pioneers of neuropathology, Binswanger (1894) and Alzheimer (1906) showed that it was possible to differentiate between senile psychoses, arteriosclerotic psychoses and neurosyphilis. Disease of the cerebral arteries was thus considered to be the aetiological factor in the production of dementia.

Such a well validated basis of differentiation allowed Kraepelin (1899) to incorporate in his model classificatory system clinically viable differentiations among cases of arteriosclerotic dementia, senile dementia and Alzheimer's disease. Maudsley (1895) described the various losses experienced in ageing and describes well the involutional depressive psychoses.

The affective and neurotic disorders as they are known today were not considered then as entities separate from the general picture of senile dementia. Firstly because of the over-inclusive nature of the term "senile dementia", and secondly because it was understandably difficult to determine whether or not neurotic or affective disorders arose de novo in the senium.

Textbooks from Esquirol (1838) to Henderson and Gillespie (1930) though dealing with psychotic and neurotic disorders extensively, neither explicitly nor implicitly consider the question of neurosis in old age. Abraham (1920) recognised neurotic reactions manifesting themselves in later life. Analytical psychiatrists Paul Schilder (1940) and Kaufman (1940) discussed analytical concepts which were applicable to the psychological processes connected with ageing. Kaplan (1945, 1956) had for the first time a specific chapter entitled, 'Neuroses of later maturity', and Mayer, Gross, Slater and Roth (1960) recognised the existence of neurotic disorder in old age.

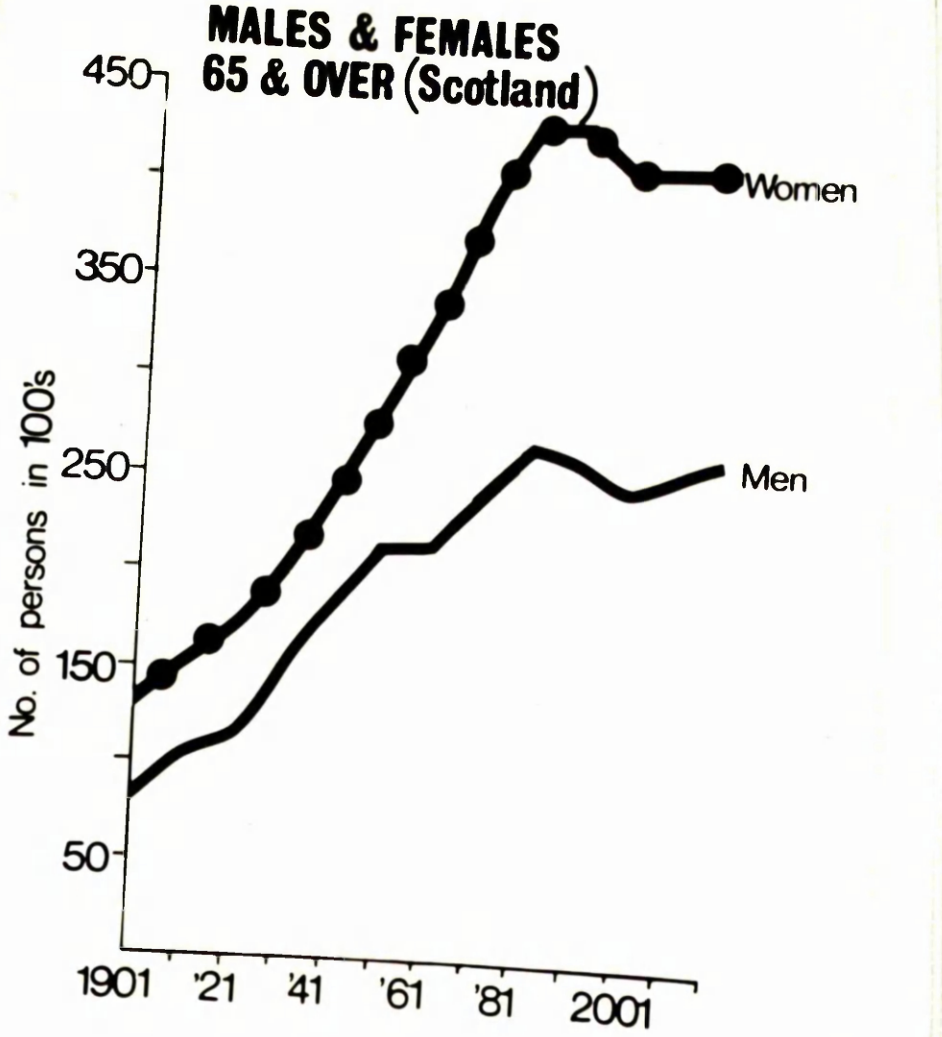
The major advance in the imposition of order on the confusion of classification of psychiatric disease in the aged has been made by Roth and his colleagues (1952, 1955, 1960, 1963) who have described diagnostic criteria which allow the majority of elderly psychiatric patients to be accommodated conveniently within five diagnostic categories: affective psychoses, senile psychosis, late paraphrenia, acute confusion, and arteriosclerotic psychoses. Roth's operational definitions distinguish between senile and arteriosclerotic psychoses mainly according to the course of the disease; in arteriosclerotic psychosis the disease changes course often, on its way towards total dementia, and in senile psychosis it proceeds unremittingly as though along a straight line to the end.

Added impetus to the movement towards more precise classification was given by various social, economic and demographic influence and over the last several decades a new interest in <u>all</u> aspects of the psychiatry of old age has been necessitated by a number of factors. Advances in neurology, biochemistry, clinical psychology and related disciplines, e.g. E.E.G. and E.C.T., have made detailed and technical investigation of psychiatric disorders of old age a more fruitful proposition than before.

Changes in the Population and its Age Structure

The 20th century has seen a large change in age structure in most countries of the western world. Due to the improved medical care the consequent decrease in mortality rates has resulted in an increase in the population in general, and in the aged population in particular.

FIGURE 1



Legend to Figure 1 : Increase in numbers of Males and Females of 65 years and over (Scotland) during the period 1901-1971 and the forward population projection to 2001. (Register General Census 1971. Forward population estimates 1973. Edinburgh HMSO).

During the last 100 years the population of Scotland has grown at a fairly steady rate and the elderly population has also similarly increased. One hundred years' ago five per cent of this population was 65 years of age or over and by 1971 this proportion of the population had risen to 12 per cent. In the elderly group the numbers have risen from just over 100,000 persons at that time to well over 600,000 people.

As shown in Figure 1 the steepest rise in the numbers of the elderly has taken place in the last decade, and on evidence of forward projections from the General Register Office (1971) this rise will continue for a further ten years.

The population increases together with the unprecedented interest in both the working capacity of old people and their financial and social support have meant that the problems of the elderly have demanded systematic and sustained attention. As a consequence the aforementioned change in the population structure and the knowledge that psychiatric disorders of the aged have replaced schizophrenia as the most common cause of mental hospital admission (first mooted by Dayton in 1940) the prevalence of such disorders in the aged has become a matter of considerable concern. For example, half of all hospital beds on any given day are occupied by the elderly (D.H.S.S. Report, 1972) and just under half of the residents in psychiatric units (D.H.S.S. 1972a) are old people, and that in general practice the elderly (C.S.O. 1972) have the highest consultation rates of all age groups. Large numbers of old people with brain syndrome are found in acute medical and surgical wards, in annexes of general hospitals ("chronic sick" wards), and in residential and nursing homes. It is estimated that probably at any time one to two per cent of the aged population are in these institutions suffering from brain syndromes. Admission to such an institution is often the result of a combination of medical, psychiatric and social factors (such as poverty or childlessness) and gives little

indication of the prevalence of the disorder in the community at large.

Thus it has come to be appreciated that a psycho-social study of the elderly cannot be properly oriented from those elderly patients admitted to hospital. If there is to be a useful increase in our knowledge regarding mental abnormality in the elderly it must come from a study of the development of psychiatric abnormality and the factors contributing to that development in the individual - a process which must be seen as occurring in the complex environmental setting of the patient's own home. Such a study, then, obviously must not be hospital focussed. Investigations of the aetiology and prevalence of psychiatric disorders have therefore, rightly, not remained only in the province of the psychiatrist, physician or pathologist working in hospital as may be seen when one considers the epidemiological studies of the past 20 years.

Introduction to Surveys

The prevalence of psychiatric disorders in the elderly has been investigated in a number of community surveys, general practice studies, and by means of hospital statistics. The World Health Organisation (1959) pointed out that "first and second or more admissions of old people into mental hospitals are taking place at an increasing rate in many countries". Figures presented by the Registrar General (1964) for England and Wales also show a progressive rise, e.g. the number of people over 65 years of age increased by one per cent between 1951-1960 but first admission to hospital rates rose by over 35 per cent over the same period.

The relative incidence of various mental disorders in old age is indicated by these hospital admission rates, but the picture remains incomplete as far as the total incidence and distribution is concerned.

In this respect population surveys have made a considerable contribution.

Epidemiological surveys which include people living outside hospitals are confronted by the usual problems of case definition and identification. The early surveys summarised by Lin (1953) are now of historic interest only. In these early surveys relatively low rates for mental illness in the aged were reported presumably because only the most severe cases were identified; families often do not consider their ageing members as ill unless they become hallucinated, excited or violent. Later studies aimed exclusively at old people have generally yielded much higher estimates of mental illness. The wide measure of agreement between different authors, often working in vastly different cultures, suggests that age-related biological phenomena are being recorded. Hagnell (1966) has suggested that such differences as exist may be due to differences in criteria or method of collection and processing. The methodology employed tends to reflect the interests and skills of the investigators, whether psychiatrist, physician, general practitioner, geriatrician, epidemiologist or sociologist, with the result that often these findings by various researchers are difficult to compare, not only with regard to the prevalence rates for the various disorders but that there may be differences in diagnostic criteria which are not always specifically stated at the commencement of the report of the study.

Investigations of the mental health of the elderly in the community have also been governed by the kind of sample studied, the aims and objectives of the investigation, the methods of collecting the information and its analysis.

The Methodology, Aims and Problems encountered by various researchers

The methodology of the investigation provides a useful anchoring device in order to groupmsets of studies into manageable areas for discussion. Only methodology will be considered in this

section. The results, where appropriate, of the cited surveys together with those of the present study are reported at the end of each section of the findings.

Sheldon (1948) a Wolverhampton physician, who is considered to be the pioneer of such studies, investigated 470 subjects of a sample of 583 people of pensionable age (men of 65 and over and women of 60 and over). These subjects had been interviewed prior to the medical investigation by a different team of researchers in the course of a survey of social conditions. The subjects were obtained by a random selection of every thirtieth name and address from Ration Book registers which were maintained during World War II. The 106 non co-operators were feared to be dead, removed from the area, or untraceable. Thirteen refusals were received mostly due to the intervention of relatives.

The aims of the survey were to obtain accurate information on (a) physical and mental state of those elderly persons, (b) to investigate the management of the illnesses of old age at home and its effect on the younger caring relatives, and (c) to outline a comprehensive pattern of old age in society and the correlation of medical and social factors.

Sheldon invited the general practitioners to assist him with details of their patients but does not state how much detail was received. The structured interview was completed at a single visit.

In 1951, Bremer, a Norwegian general practitioner, conducted during World War II, when any geographical movement of the Norwegians was prevented by Nazi occupation, a five-year period prevalence of a general population of 1,080 in a small rural community in Northern Norway. Of this group 119 subjects were aged 60 years of age and over. His aims were to investigate the interaction of social and psychiatric factors.

The investigation by Hobson and Pemberton (1955) in Sheffield followed in the wake of a social survey made by the Sheffield Council of Social Service in 1948. The selection of the original

sample was similar to that of Sheldon's in that one in thirty names and addresses were drawn from Social Service and Food Office records.

The aims of the survey were to investigate and describe the state of health and diet of those of pensionable age (men aged more than 65 years and women aged more than 60 years) living alone at home or with their spouse. Seven hundred and thirty-six persons were found to satisfy this criterion but of the 736, 118 were uncontactable for unstated reasons, and 138 refused. In a further four cases the general practitioner refused to give the research team access to his patients.

The 476 were interviewed firstly by a social worker who completed a questionnaire and then they were physically examined by a survey doctor. Only six per cent were actually examined by the authors themselves.

Essen-Moller (1956), together with three other Swedish psychiatrists, examined 99 per cent of the 2,550 subjects of a delineated rural area in Southern Sweden. Four hundred and forty-three subjects were aged 60 years and over. The data obtained from a single psychiatric interview were supplemented by information from various individuals who knew the subject well, from records of their general practitioners and hospital records where these were appropriate. No information was available on any difficulties encountered with regard to incomplete case records.

In order to conduct a mental health survey of elderly people in an urban area, 1,592 subjects aged 65 years and over residing in six selected census tracts of Syracuse (U.S.A.), in hospitals, homes and at home, were interviewed by a research team of 11 interviewers under the directorship of Gruenberg (1961). These 11 interviewers received a short induction course prior to the data collection. (The field team was composed of undergraduate medical, social case-work and history students on vacation from University and College.) The completed sheet with protocol was reviewed and assessed by a

team of psychiatrists and psychologists.

In contrast to the large scale study, Primrose (1962), a general practitioner to a rural community of 1,701 (222 were more than 65 years) considered his own practice list with a view to psychiatric assessment of each patient. Only 56 long, free-type of psychiatric interviews were sought in the study because of the author's extensive personal knowledge of the area and its inhabitants.

The following year (1963) Miller, a rural general practitioner in Shropshire, reviewed his practice list of pensioners (men of more than 65 years and women of more than 60 years). No questionnaire was applied but 328 were personally examined by him. Only seven refused the medical examination and one was untraced.

With the aim of investigating to what extent a geographically delineated population would make use of a psychiatric service, Neilsen (1963) a Danish psychiatrist, collected data on the incidence and prevention of psychiatric illness in the mainly rural community of a Danish island and elucidated the extent of need for psychiatric treatment in the population concerned. The total population of the surveyed island was 6,189 and of these 994 were more than 65 years of age. This period prevalence study was carried out over a six-monthly period. Information was collected from various sources. Two hundred and fifty-six subjects had personal interviews with the psychiatrist, 260 subjects had information given about them by their general practitioner and district nurse, and the remainder of the population (478) were psychiatrically assessed by reference to reports from a previous community study.

The classic study of Kay et al., (1964a) investigated the prevalence of mental disorders in the urban elderly of Newcastle-upon-Tyne. Sampling was made of five electoral wards of total population of 9,031. In order to ascertain age of those 1,780 subjects drawn from the electoral roll and, if suitably aged, their consent to participate in the survey, explanatory request letters were sent to those individuals selected. Only three individuals refused outright to be interviewed

and three others did not complete the entire interview. Three hundred and nine subjects were seen at home by one of two social workers who collected social and domestic arrangement details and then each subject was seen by one of two psychiatrists who completed medical and psychiatric inventories.

A Scottish team comprised of geriatricians, a psychiatrist, and a social worker (Williamson et al., 1964) investigated the unreported needs of elderly persons at home. A random sample which consisted of 200 subjects was taken from those patients of 65 years and over, whose names appeared on the practice lists of three general practitioners in Edinburgh who had agreed to co-operate with the researchers.

Many problems occurred in the derivation of this sample. Some potential subjects were found to be dead or untraceable, 11 were omitted and 48 refused examination. These inevitable problems which recur in properly documented surveys of this type were described in some detail when a similarly constituted team attempted to select a cohort representative of the elderly population (Milne et al., 1971). A medical social worker visited each home. Physical examination was carried out by one of two geriatricians in the general practitioner's surgery and a semi-structured interview was conducted by the survey psychiatrist.

A psychiatrist in Swansea, Wales, (Parsons 1965) reported a study of 271 community elderly aged 65 and over, each one of whom he had personally interviewed in their own homes. Twenty-seven of the original sample were dead and 16 refused or were untraced. The examination consisted of a semi-structured interview during which questionnaires were completed on the psychiatric and physical health aspects of the co-operative individuals. The Maudsley personality inventory and the paired association learning test were also applied.

A prospective study of the incidence of mental disorder was carried out by Hagnell (1966, 1970), a Swedish psychiatrist who followed up the study sample of Essen Moller (1956) ten years later and interviewed 238 of the surviving 244 of the original 443 elderly people of 60 years of age and over in 1957. Information regarding the subject's life, health and personality was collected from the

subjects themselves, from their general practitioners' and other records. The incidence and disease expectancy of mental illness were calculated from two different indicators of mental illness; (i) admission to mental hospital, and (ii) the psychiatric impression formed after interview.

Psychiatric illness in general practice was studied in a comprehensive survey (Shepherd et al., 1966) of 46 general practices in London, and a one-in-eight representative sample of the practice lists. The participating doctors were asked to record every consultation made by the selected patient, on cards, over a one year period. The aim of the survey was to investigate patient consulting rates for psychiatric morbidity (i.e. the one year prevalence rate or the number of patients with psychiatric condition who consulted the general practitioners on at least one occasion during the survey year per 1,000 patients at risk). In the survey sample 15.9 per cent of the population of 14,697 were aged 65 years and over.

Using the census method and referring to area statistics for the period 1st November 1964 to 1st November 1967, Akesson (1969), a psychiatrist, investigated the frequency and other demographic features of senile and arterio-sclerotic psychosis in Swedish island populations. The surveyed population was 4,198 persons of 60 years of age which constituted 24.3 per cent of the total population. Key informants gave information regarding the location of possible dementing elderly persons. The author interviewed most of these 78 individuals; 37 of these people lived at home and the remainder were in old people's homes or hospital care.

The study of psychiatric morbidity in his general practice in London by Kessel (1960) and the sociomedical study of 342 patients over 75 years of age on the lists of a Manchester group practice (Williams, 1972) are indicative of the importance of the contribution to epidemiological field study which may be made by general practitioners. Both these studies are descriptive in character

and measure the patterns of demand and need for medical care. It is usual that such surveys achieve greater co-operation and smaller refusal rates because of the previous patient/general practitioner relationship. For example, in the Manchester study in the general practice setting only 40 of the 342 persons invited to take part in the survey refused full medical examination. Four were in hospital and thus exempt from the study.

Follow-up studies of samples of men and women are essential to a proper appreciation of age change and the outcome of clinical syndrome groups since the usual cross-sectional sampling fails to reflect fully the full spectrum of life styles. Dynamics of the ageing process, and outcome of disease states are better understood by reference to the longitudinal studies of the aged although few exist because such studies often present problems in that subject.

Co-operation is difficult to secure and maintain and losses of both subjects and observers occur by death and migration. Because of these inherent difficulties there are comparatively few studies which consider the changes which occur in the physical and psychiatric health and social life situation between aged subjects interviewed at two points in time and those lost through death.

Certain follow-up studies have been published (Post, 1951; Robertson and Browne, 1953; Kay et al., 1956) but these have been mainly concerned with the differences in mortality between hospital in-patient groups with predominantly functional organic mental symptoms.

In a further study by Kay (1962) in Stockholm the hospital admission records of patients over the age of 60 (for the years 1931 - 1940) were examined and a follow-up study was conducted in respect of survival, mortality rates and causes of death. These findings were compared with those of the general population, standardising the data for age and sex. The period of follow-up ranged from 16 to 25 years.

Some other follow-up studies are available in groups of subjects tested in early or adult life such as these reported by Owens (1959, 1966) and by Bayley and Oden (1955). These were limited in scope, since they focussed mainly on intellectual functioning and offered little that could be applied with confidence beyond 65 years of age. More recently the work of Jarvik and her associates (1962, 1963) which dealt with intellectual performance of aged twins, as well as the reports of Kleemeier (1962) and of Berkowitz and Green (1963) which are also devoted to intelligence, are more pertinent to the problems of tracing the longitudinal patterns of functioning in the aged. Interdisciplinary studies are represented by the work of Reigel et al., (1967a,b) and the Duke University investigation led by Busse (Busse, 1967; Palmore, 1969) which focussed on the interrelationships among factors such as intelligence, attitudes, personality functioning and health status, as individuals moved from the middle years into later life.

In 1963, the results of a study of volunteers consisting of a group of 47 elderly men who were living in the community, free of significant physical and mental pathology, was described and discussed by Birren et al. These elderly men who constituted the group were followed up eleven years after the original study and intensive behavioural examination was performed together with medical and physiological studies by an interdisciplinary team (Granick and Patterson, 1971).

In this country the many publications of the Newcastle group of the follow-up of the Newcastle-upon-Tyne random samples of the elderly (Kay et al., 1964a,b) indicate an interdisciplinary approach in that studies include data from psychiatric assessment (Kay et al., 1966, 1970), psychometric test performance (Britton et al., 1967; Hall et al., 1972), and social assessment (Kay and Bergmann, 1966).

In 1972, Bergmann reported his follow-up studies of two samples of old people living in Newcastle-upon-Tyne. His aim was to examine

early, doubtful or incomplete cases of dementia in order to discover some indication as to the significance of various types of impairment in the genesis of chronic progressive organic psychosyndromes. Five per cent of the cases could not be traced after approximately four years had elapsed.

A nutritional survey of an ageing population with 14 year follow-up was conducted by Steincamp et al. (1965). Since their original survey in 1948, nutrition, dietary habits, morbidity and mortality data have been collected at three follow-ups but only 283 of the 577 community residents were 65 and over. In 1952 the subjects were seen and had again a physical examination with record of their nutritional intakes made. In 1954 a public health nurse completed a one day record of food intake. However, by 1962 only 95 subjects were available for re-study. Morbidity and mortality changes were noted but no attempt was made to investigate any possibility of an association between the dietetic findings and physical state.

A diligent search of the literature by this author was unable to produce reference to any study in which physical, mental, psycho-social, and nutritional components have been examined and evaluated and considered on a longitudinal basis.

In conclusion it can be said that the improvements in diagnosis and classification have encouraged a multi-disciplinary interest in this field with the result that many different facets of the physical and mental disorders of old age are now being explored. However it is thought that a multi-disciplinary study would greatly advance knowledge in the said field since mental disorders in the senium can only be understood fully by considering not only symptomatological criteria but by examining also aetiological factors and clinico-pathological changes, and then relating these to the changes consequent upon so-called normal biological senescence.

DESIGN OF THE SURVEY

THE SAMPLE AND ITS DERIVATION

The Sampling Frame

It was decided that the initial sampling frame would consist of two adjacent postal areas of the North West and West 2 areas of Glasgow. These are known to be well contrasted with regard to the economic indices of town rateable value and district and amenity rating (General Register Office 1967a,b; 1968; 1969).

The North West area with many old tenement blocks is predominantly working class. The occupations of the inhabitants are found to be consistent, in the main, with Registrar General Social Class III - V (General Register Office 1960).

Illustration 1: A main thoroughfare (North West Glasgow)

Illustration 2: A residential side street of tenements
(North West Glasgow)

Illustration 3: Older substandard tenements (North West Glasgow)

Most of the older tenements in the North West district were built in the late 19th century or early part of the 20th century and although some are well maintained, the majority are in varying states of disrepair.

Illustration 4: Partially derelict tenement and close entrance (North West Glasgow)

A 72 year old woman subject was interviewed* in her second floor flat of the partially derelict tenement (above). The ground floor oriel window is blocked with corregated iron. The subject has been rehoused since this photograph was taken.

The ground floor of these tenements may be utilised as housing or by small shops, and these tenement buildings may rise to two or three stories in height above the main close* from the street.

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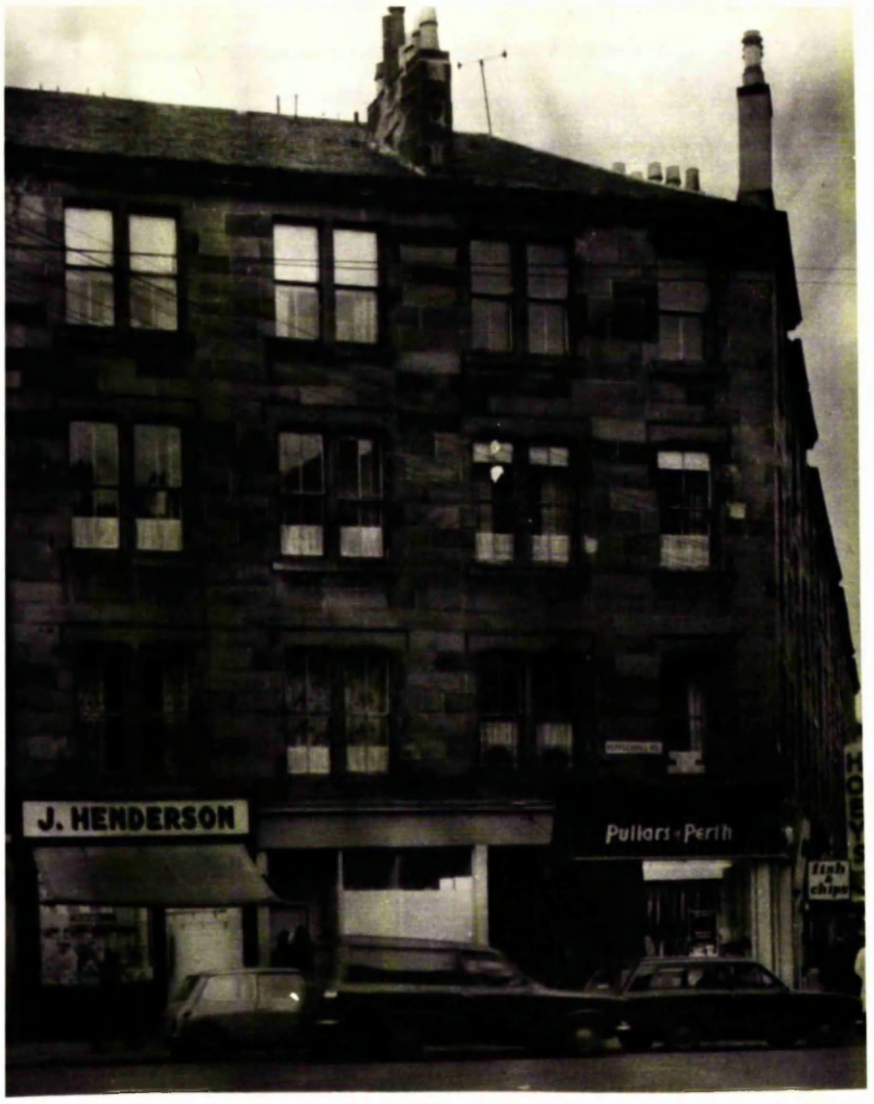
* Common unpenned access corridor.

The close is often windowless and consequently extremely dark. A few closes still have gas lighting and the 'Leerie'* could be seen on his rounds at dusk and dawn in the area until the last few years.

Illustration 5: Tenement block showing shops at street level and and close entrance (North West Glasgow)



Each close is used by between six and eleven households. The number of households in the building is dependent upon the height of the tenement and the size of each dwelling house. The end of the close, opposite from the close mouth or street opening, leads to access stairs and back yard area.

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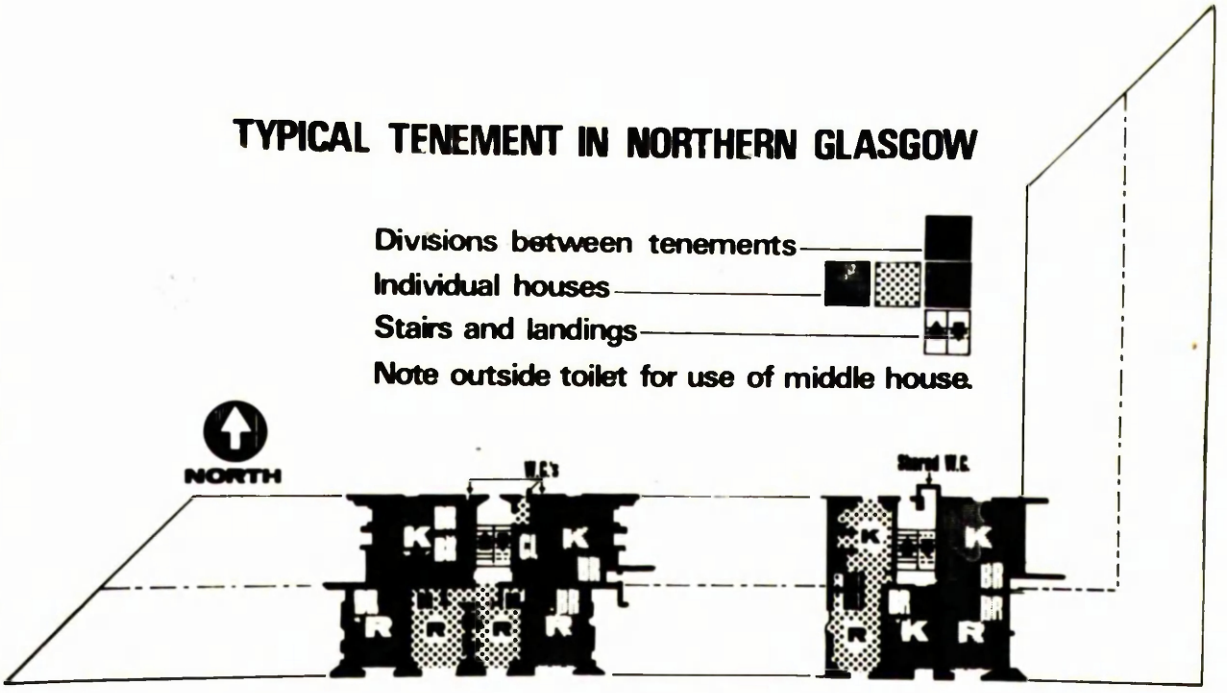
* Gas lighter with his torch.

Illustration 6: Typical tenement backyard. Three rear close entrances may be seen to the right of the background. Subject is indicating the inadequacy of the ground surface (North West Glasgow) Foreground (R)

Most of these tenements contain two or three apartment flats. The two-apartment flats consist of one room, one kitchen/living room and either an inside or a shared outside water closet.

Illustration 7: Floor plan of typical tenement in North West Glasgow (K = kitchen; R = room; Cl = closet-cupboard; BR = bed recess (a form of open cupboard with just enough room to accommodate a bed) WC = water closet.)



There still remain a few 'single-end' apartments, so-called because they are invariably located at the end of the tenement block. These consist of one all-purpose room with cold water only and shared outside water closet.

Two aspects of such a single-end are shown in Illustrations 8 and 9. The occupant is a 72 year old unmarried retired taxi driver who had had his right leg amputed.

Illustration 8: Living area, fire place, cooker and sink with cold water only

Illustration 9: Sleeping area in the room to the left of fireplace

These photographs also illustrate many of the accident hazards which result from living in such a small area in poor circumstances.

(a) Open unguarded fire.
(b) Trailing electric coils.
(c) Electric kettle at sink at window hidden by hanging towels.
(d) Use of gas cooker as side table for spectacles, papers etc.

The subject had considerable difficulty with his walking. This disability was further complicated by some residual weakness as a consequence of a cerebral vascular accident, and considerable exertional dyspnoea from chronic congestive cardiac failure which was also present.

Several types of Council housing tenements are also to be found in the area. Some are badly kept with many broken windows and neglected gardens.

Illustration 10: One of the many streets of deteriorated Council tenements (North West Glasgow)

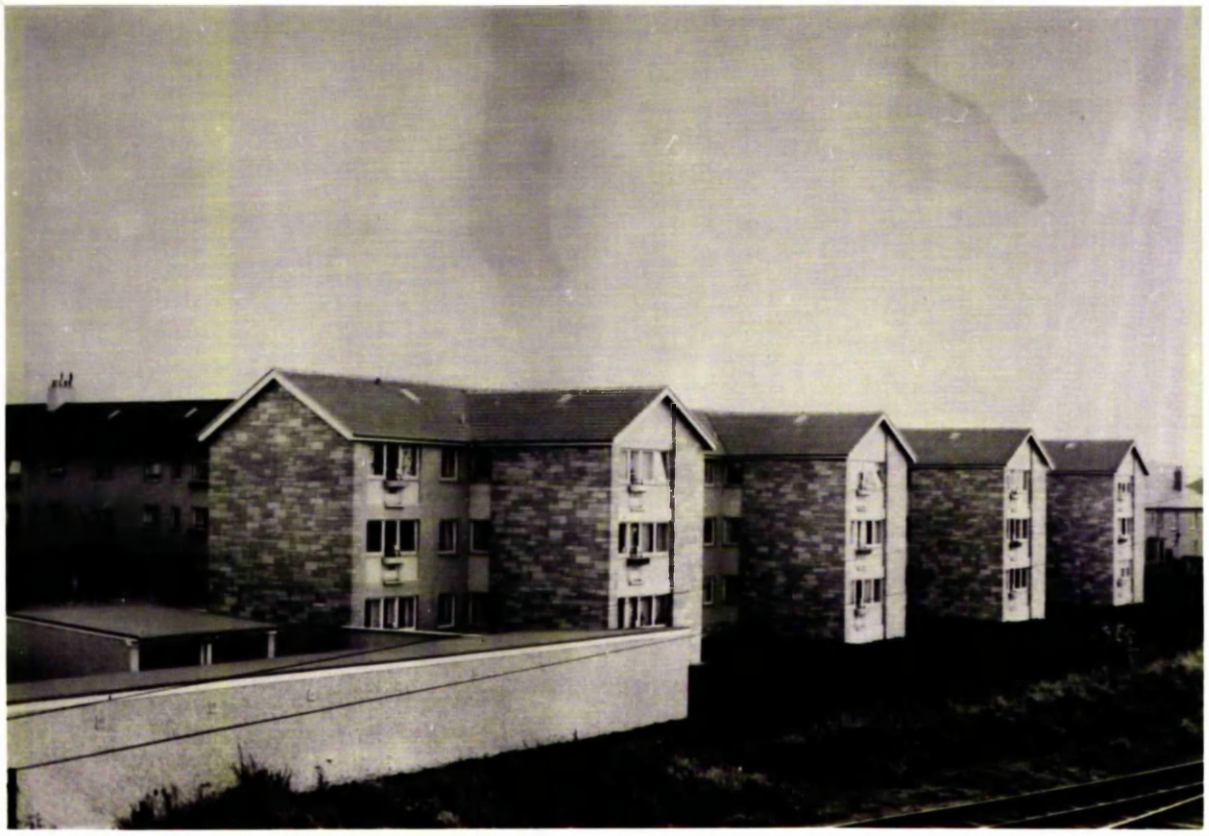
Illustration 11: Deteriorated Council tenement showing boarded-up windows, untended front garden and close (North West Glasgow)

Small groups of pre-war Council housing which are well kept are found in this area as well as in the West 2 areas.

Illustration 12: Pre-World War II Council housing with well kept garden etc.

There is also a new Council scheme built on the site of a demolished army barracks in the North West area which is excellent both in design and in community spirit. (Illustration 13)

Illustration 13: Wyndford Housing Estate, built by Scottish Special Housing. Note absence of litter and graffiti.



The west of Glasgow (W.2.) area consists by contrast with the North West area (N.W.) of many owner-occupied houses, flats, tenements and terraces, similar in design to those of northern Glasgow but larger (three or four apartments with bathrooms and hot and cold water) but here they are well kept and in good repair. (Illustration 14)

Illustration 14: Typical early 20th century tenement (W.2.)
Note ornamental railings, coach lamps etc.

Some large Victorian mansions in the W.2. area have been subdivided into bed-sitting rooms and flatlets. (Illustration 15)

Illustration 15: Typical Victorian mansion house in Glasgow W.2. containing 10 flatlets.

In general, the owner-occupied housing and the rented Council houses with gardens in the W.2. area are extremely well cared for.

Illustration 16: Modern Council housing occupied, in the main, by retired people (West Glasgow)

Although every category of the Registrar General's class divisions is represented in this area, Social Classes I and II predominate.

Selection of the Sample

It was considered that selecting at random six general practices whose main surgeries were to be found within these two areas, i.e. three general practitioner surgeries randomly selected from those of the postal districts of the North West area and three from the West 2 area, would provide a satisfactory cross-section of urban practice areas in Glasgow and a consequent distribution of subjects from all social groups would emerge from random sampling of these practice lists and would constitute the study sample.

The research clinic in which these elderly subjects were to be examined, the X-Ray facilities, the office accommodation and the two other hospitals wherein laboratory, haematology and biochemistry sample analysis were to be made, were located in the North West area facilitating the logistics of the study.

Thirty-two general practitioners have their surgeries within the North West and W.2. areas in Glasgow and service 16,839 elderly people according to National Health Service City of Glasgow Executive Council Lists (1969). From these 32 practices a sample of six general practices was drawn.

The total number of elderly people, i.e. those patients of 65 years of age and over on all general practice lists are shown on Table 1 for each of the two postal areas sampled.

TABLE 1

	W.2.	N.W.
1st February 1969	10 practices (23 doctors)	22 practices (43 doctors)
Number of elderly patients	6,120	10,719

The number of names and addresses of elderly people appearing on these general practitioners' lists is shown in Table 2.

TABLE 2

	W.2.			N.W.		
1969	Dr. 1 (3 GPs	Dr. 2 (1 GP)	Dr. 3 (1 GP)	Dr. 4 (3 GPs)	Dr. 5 (2 GPs)	Dr. 6 (2 GPs)
	580	331	358	444	495	479

(Dr. 1 was found to have two surgeries - one in the W.2. area and one in the W.3. area of Glasgow).

The total number of elderly people appearing on the Executive Council lists for these practices was 2,687. A random selection of 900 names and addresses of those aged 65 years and over was made by lottery method from the combined lists of all six practices.

As the lottery process was conducted every second name in the younger age group was discarded so that a 1 : 1 ratio of those under 75 and those of 75 years of age and over was obtained, with the eventual result that an age-stratified block of 707 names and addresses was formed.

In order to minimise drop-out from death and moving house, groups of 100 names were chosen every three months for 27 months, and not in one block.

The following flow-gram indicates the derivation of the sample.

32 GPs 16,839 elderly subjects → 1st Random Sampling → 6 GPs 2,687 elderly subjects → 2nd Random Sampling → 900 elderly subjects → Age Stratified Procedure → 707 elderly subjects

TABLE 3

Percentage of Elderly Persons on Practice Registers Sampled

Practices	Nos. of elderly people reg.with GPs according to EC lists.*	Nos. of names & addresses sent to survey by EC	% sampled by survey	No.found to be dead	No. untraced by Health Visitor	Total unavailable for survey	% unavailable	Total No. available for survey	Total % available
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Practice 1	580	119	20.5	5	13	18	15.1	101	85.0
Practice 2	331	124	40.7	9	18	27	21.7	97	78.3
Practice 3	358	126	35.1	17	16	33	26.2	93	73.8
Practice 4	444	108	24.3	9	14	23	11.3	85	88.7
Practice 5	495	109	20.0	15	9	24	22.0	85	88.0
Practice 6	479	121	24.3	4	62	65	53.7	56	46.3
TOTAL	2,687	707		58	132	190		517	

* Each Regional Executive Council of the National Health Service is statutarily bound to maintain lists of the names and addresses of all persons aged 65 years and over who are registered with general practitioners in the appropriate catchment area.

The Summary (Table 3) shows in column (i) the practices; (ii) the number of elderly people listed on N.H.S. Executive Council lists; (iii) the number of names and addresses selected by lottery method from each practice by Executive Council; (iv) the number of elderly subjects sampled per practice expressed in percentage; (v) number found to be dead prior to the survey; (vi) number of subjects untraced by health visitor; (vii) total number unavailable for study; (viii) the proportion of (iii) unavailable expressed as a percentage ; (ix) the number available for survey, and the last column (x) shows the proportion of those available for survey from (iii) expressed as a percentage.

Of the 707 names and addresses received from the Executive Council, it was found that 58 (8%) were dead and 132 (19%) were untraceable by door to door survey and by other means. These statistics were unknown to the Executive Council and in a few cases were unknown to the general practitioners themselves (see Table 4).

TABLE 4

Unavailable Subjects expressed per general practice as a percentage of the total names and addresses received from Executive Council Lists (Gilmore & Caird 1972.)

		% Dead	% Untraced
W.2.	Practice 1	4	10
	Practice 2	8	15
	Practice 3	14	13
N.W.	Practice 4	8	13
	Practice 5	14	8
	Practice 6	2	51

Of the remaining 517 prospective subjects, 67 were omitted for various reasons (see Table 5).

TABLE 5

	No.
Ineligible because of :	
Living in care, residential homes or in hospitals	45
Nuns	5
Recent removals to other towns	3
No longer on GP's list	3
On GP's recommendation (GP's relatives, recent unpleasant hospital experience, recent bereavement)	7
Incorrect date of birth (ages: 20, 25, 62, 60, instead of 65 plus)	4
TOTAL	67

Of the 450 who qualified for inclusion in the sample and were invited to participate, 150 refused.

Since the proposed examination was lengthy and of fair intensity, a refusal rate of 33% is fairly easily understood.

The Refusals

Refusals fell into two categories; the straightforward direct refusal and the delayed refusal. Often a procrastination or other avoidance tactic was employed, e.g. "Could you call again after the summer holidays ... Christmas, Easter, next year ... ". After three such refusals the subject was considered to have definitely refused.

Table 6 shows the number and percentages of available subjects who co-operated and those who refused to co-operate in the survey of 1969. (i) Practice number; (ii) numbers of subjects available; (iii) those omitted for various reasons; (iv) number of subjects approached; (v) number of co-operators; (vi) is (v) expressed as percentage of (iv); (vii) number of refusals; (viii) is (vii) expressed as percentage of those available (iv).

TABLE 6

Number of Elderly People in 1969 Survey

Co-operators and Refusers

Practices (i)	Nos.avail-able for approach (ii)	Omit (iii)	No. of approaches (iv)	Co-op. (v)	Percentage (vi)	Refusors (vii)	Percentage (viii)
Practice 1	101	8	93	68	73.2	25	26.8
Practice 2	97	21	76	47	61.9	29	38.1
Practice 3	93	12	81	50	61.8	31	38.2
Practice 4	85	8	77	53	69.2	25	30.8
Practice 5	85	7	78	54	69.2	24	30.8
Practice 6	56	11	45	28	63.7	16	36.3
TOTAL	517	67	450	300		150	
			Mean of percentages 66.6				33.3

Table 7 gives the various reasons for refusal with the number of non co-operators.

TABLE 7

Analysis of Refusals

	No.
Delayed Refusals - 49 Direct Refusals - 101	
No reason given	16
Could not be bothered	17
Afraid of doctors (disliked doctors and strangers)	16
Afraid of findings of survey doctors	7
Too busy (still employed, caring for others)	11
In attendance at out-patients or recently discharged from hospital	7
Relatives or others objected	7
Felt fit, therefore considered it unnecessary	4
Over-anxious about everything	4
The survey's reputation	4
Did not want to be experimented on	3
About to move outwith the area	4
Felt privacy was being trespassed	1
TOTAL	101
ALL REFUSALS	150

It was decided to investigate the bias factors on refusal rate by considering the practices and the age and sex of the available subjects.

TABLE 8

Percentage of Co-operative and Non Co-operative per Practice

Practice	Nos. who co-op.	%	Nos. who refused	%	Total available	Total on Executive Council List
P 1 (2 surgs)	68	73	25	27	93	580
P 2	47	62	29	38	76	331
P 3	50	62	31	38	81	358
P 4	53	62	25	31	78	444
P 5	54	69	24	31	78	495
P 6	28	64	16	36	45	479

As can be seen from Table 8 there was no significant difference between the co-operation and refusal rates of subjects arising from each of the six practices. There was, however, a significant difference in the proportion of untraced subjects originating from Practice 6 and the other practices (see Table 3). The complement of this phenomenon was to be found in the difference between this practice and the others of the number of patients whose names and addresses appeared on Executive Council lists but were found in actual fact to be dead (see Table 3). Practice 6, however, was in an area in which rapid redevelopment and consequent population flux was occuring.

TABLE 9

Distribution of Co-operative and Refusals by Age

Practice	CO-OPERATORS			REFUSALS				
	65-74	75+	Total	65-74	%	75+	%	Total
P 1	35	33	68	14		11		25
P 2	24	23	47	18		11		29
P 3	23	27	50	15		16		31
P 4	29	24	53	17		8		25
P 5	35	19	54	16		8		24
P 6	15	13	28	7		9		16
	161	139	300	87	56	63	44	150

Table 9 gives the numbers of those available for survey distributed by age, in order to investigate a possible tendency of the older subject to refuse. Eighty-seven of the possible 246 subjects refused (aged between 65 and 74 years) equivalent to 35 per cent refusal rate in this group. Sixty-three of the 204 possible subjects aged 75 years and over refused - a percentage of 31 (X^2 = 0.98, d.f. 1, N.S.).

Thus the data refutes this hypothesis and there was no significant difference found between the two age groups.

TABLE 10

Distribution of Co-operative and Refusals by Sex

Practice	Co-operative		Refusals		Total number	
	M	F	M	F	M	F
P 1	10	58	0	25	10	83
P 2	14	33	6	23	20	56
P 3	7	43	3	28	10	71
P 4	17	36	5	20	22	56
P 5	23	31	7	17	30	48
P 6	12	16	6	10	18	26
TOTAL	83	217	27	123	110	340

Table 10 shows that significantly more women than men refused to take part in the survey, viz 123 of 340 women (36%) and 27 of 110 men (25%) (X^2 = 5.44, d.f.1, p$\rangle$ 0.01). The greatest number of "delayed refusals" were from women. Similar high refusal rates were made by Cartwright (1959) in her study on non co-operators and their families in a social survey. In persons of 65 and over the non-co-operation rate was 26 per cent and it must be pointed out that Cartwright's study was by interview alone, without clinical examination. A probable reason for so many refusals, in this instance, was that such an intensive examination was unacceptable and acted as a deterrent to the co-operation of all those approached.

From the Executive Council's files, names, addresses, age and sex are generally available, but marital state is not always recorded so that comparison of refusals and co-operators was limited to the aforementioned considerations.

The 300 subjects of the research sample consisted, therefore, of 217 women and 83 males. One hundred and sixty-one of these subjects were aged between 65 and 74 years and 139 were aged 75 years and over (see Table 11).

TABLE 11

Distribution of Sample by Age and Sex

Age	Male	Female	Male & Female
65 - 74	50	111	161
75 +	33	106	139
	83	217	300

So that 53.7 per cent of the sample was in the younger age group and 46.3 per cent of the sample consisted of the older age group of 75 years of age and over, producing an almost 1 : 1 relationship between the younger and older age groups of the sample, and bears some relation to the distribution of the younger to older age groups in the general population of those sixty-five years and over which is calculated as being 2 : 1 (Census 1966).

The proportion of males to females up until the age of 80 was approximately 1 : 2. After 80 years of age there was a greater difference in the proportions which was an expected phenomenon resulting from the unexplained but well documented difference in longevity of men and women (Census 1966). In this country the average expectation of life is about 69 years for men and 75 years for women (Registrar General 1964).

TABLE 12

Distribution of Subjects by Age and Sex (n = 300)

Age	M	F	Total M+F	Percentage	
65 - 69	25	52	77	25.6)	) 52.9
70 - 74	24	58	82	27.3)	
75 - 79	24	53	77	25.6)	
80 - 84	9	37	46	15.3)	47.1
85+	1	17	18	6.0)	)
All ages	83	217	300	100.0	

A social and occupational history was taken from each subject. Men and single women were classified according to the occupation at which they had been employed the longest, married women and widows by their husbands' occupations. Socio-economic groups (S.E.G.) were determined from the classification of occupations (General Register Office 1966).

TABLE 13

Socio-economic Groups in Sample and Population

S.E.G. Category	S.E.G.'s in Category	Registrar General's Social Class*	Sample M	Sample F	Sample M+F	% of Total	% of Population
A	1, 2, 3, 4, 13	I and II	15	32	47	16	10
B	5, 6	III N.m.	17	69	86	29	20
C	8, 9, 12, 14	III M.	34	70	104	35	36
D	7, 10, 11, 15	IV and V	15	38	53	18	29
E	16, 17	-	2	8	10	3	5

* Approximate correspondence; category E contains Armed Forces and unclassified occupations.

NB N.M. = non-manual
M. = manual

The S.E.G.s were combined into five categories (A to E) as shown in Table 13, in order to compare the distribution of these categories in the sample with the best estimate for the population from which the sample was drawn. This estimate is derived from data at the 1966 census for retired men in the parliamentary constituencies of Hillhead, Maryhill, Scotstoun and Woodside (General Register Office 1969). The sample contains an excess of subjects in S.E.G. categories A and B and a deficit in category D, compared with the population.

TABLE 14

Marital Status : Males

Age Group	Married	Widowed	Single	Other	Total
65-74	32	10	6	2	50
75+	19	13	1	0	33
TOTAL	51	23	7	2	83
%	61.4	27.7	8.4	2.4	100.0

Of the 217 females (Table 15) 48 (22.1%) were married, 104 (47.9%) were widowed, 63 (29%) were single and 2 (0.9%) were apart from their husbands but not legally separated.

In the younger age group 33 of the 111 females (29.7%) were married as opposed to the 15 of the 106 females in the older age group (14.2%).

Of the 83 males (Table 14) 51 (61.4%) were married, 23 (27.7%) were widowed, 7 (8.4%) were single and 2 (2.4%) were living apart from their wives but not legally separated.

There was a higher percentage of married men in the younger group, 64% as opposed to the 57.6% of the older group. A smaller proportion of younger men were widowed, 20% as opposed to 39.4% of the older age group and 16% of the younger age group were unmarried or living apart from their wives. As to be expected there were higher percentages of widowed and single women in the older age groups, 50.9% and 34% respectively, as compared with the 45% and 24.3% of the younger group of females.

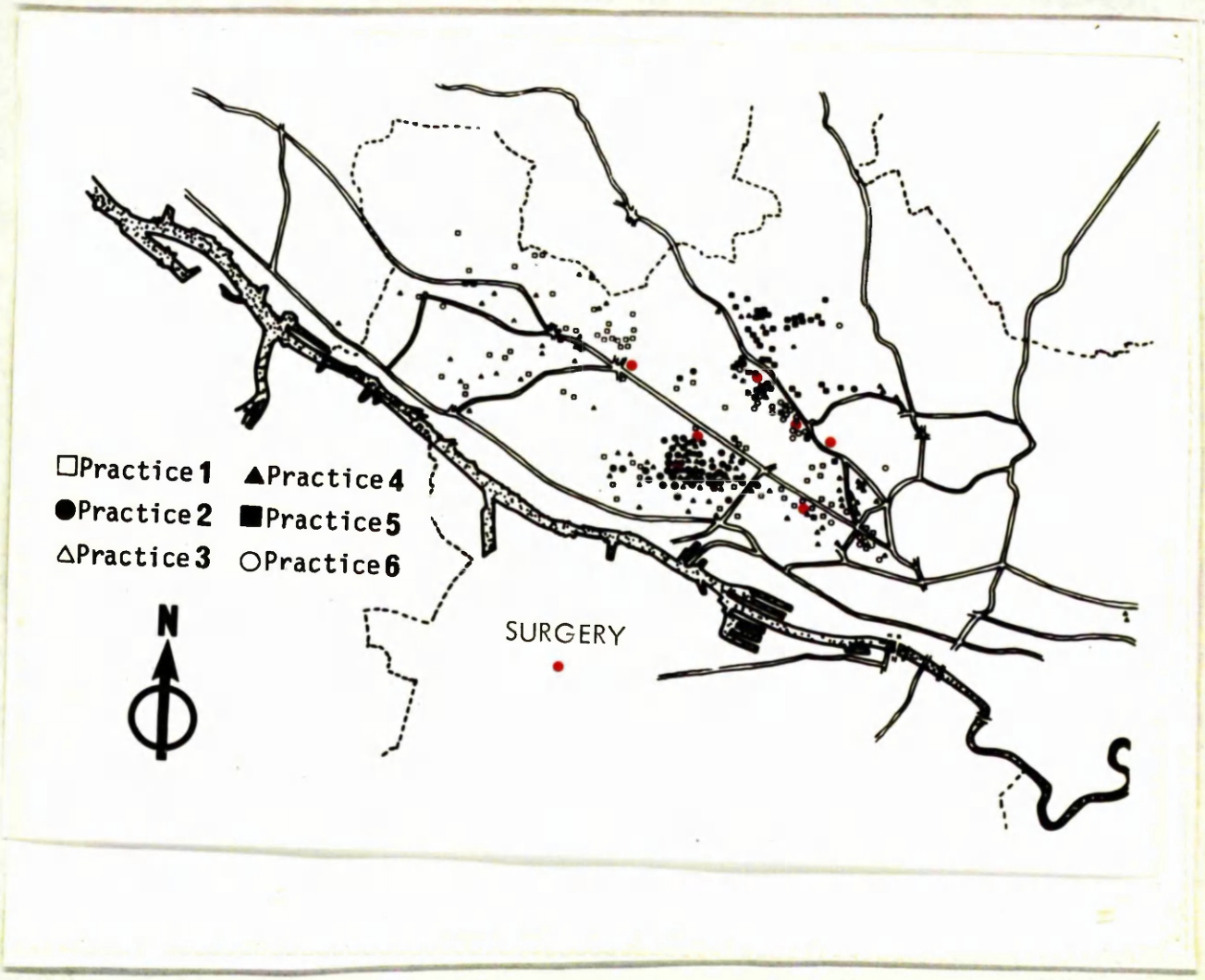
TABLE 15

Marital Status: Females

Age Group	Married	Widowed	Single	Other	Total
65-74	33	50	27	1	111
75+	15	54	36	1	106
TOTAL	48	104	63	2	217
%	22.1	47.9	29.0	0.9	100.0

There were proportionally more married men than married women (61.4% and 22.1%) and more widows than widowers (47.9% and 27.7%). There were proportionally more single women than unmarried men and proportionally more men living apart from their spouses than women (2.4% v. 0.9%).

Illustration 17: Schematic map of Glasgow



The schematic map of Glasgow shows the river Clyde in dotted relief and the main arterial roads in the north of the city.

Illustration 17 shows the location of the 300 subjects' homes in relation to the position of the six practice surgeries. Each subject's home is represented by a small symbol which identifies with the larger red symbol of the appropriate surgery.

Appraisal of Sample

The aim was to obtain a stratified random sample representative of the elderly population living at home in Glasgow, but how well has this aim been achieved and how did it compare with other similar studies.

1. The mean 25 per cent error of Executive Council lists. (This finding is corroborated by further work in the Glasgow area by Hannay, 1972).
2. The 9.4 per cent overall omission rate which is too infrequently mentioned in other similar studies.
3. The 33.3 per cent refusal rate of the available subjects approached.

Williamson (1964) of Edinburgh, cited a refusal rate of 20% in a sample of 936 names and addresses and a further paper (Milne et al., 1971) qualified remarks in his original paper with regard to the loss of possible subjects because of death before selection procedure and inaccuracy of Executive Council lists. Further, of those available for examination in the Edinburgh sample, 28.5 per cent refused. Other survey authors are less explicit with regard to the method of finding subjects, but more optimistic in their success rates. Parson's (1965) population was the offspring of a dietetic survey. Kay et al., (1964a,b,c) apparently met with so few inaccuracies that these were not heeded. Primrose's study in 1962 was a psychiatric survey by a general practitioner of his own practice list. Hobson and Pemberton (1955) experienced some unspecified difficulty in the examination of women patients at home and even the pioneer (Sheldon, 1948) of this type of home survey with the elderly met with refusals.

In support of the sample, certain procedures worked satisfactorily.

1. The age-stratified procedures resulted in equal numbers of those aged below 74 and 75 years of age and above.
2. Those who agreed to participate, participated fully and completely.
3. The random nature of the sample with regard to the practices was satisfactory.
4. A mean percentage of 27.4 was sampled from the six practice lists by the Executive Council.

However, a study of a sample of old people such as this, since it cannot be regarded as a true random sample, cannot be the basis for conclusions about old people generally; but neither can it be regarded as yielding information only about the individuals who took part in the examinations.

The author made a retrospective contribution to the sampling procedure in that data was collected regarding general practice statistics and random sampling methods from Executive Council Registrar, when preliminary evaluation of results from the survey began some eighteen months after the first data collection had commenced in main survey.

Methods

Table 16 shows the degree of involvement of the present investigator in the larger survey of the elderly living at home during the period 1969-1971, and also in the investigation during the years 1972-1974 - the latter investigation being conducted single-handed by the author.

Survey 1969 - 1971

As part of the original survey 1969 - 1971 aspects of mental health were studied. In addition, the following factors were taken into account.

(a) Cognitive functioning
(b) Personality
(c) Mental status
(d) Social class
(e) General social background

The information was obtained by the following methods.

1. Documentation. General practice and hospital records were studied for each subject.
2. Interviews. General practitioners were asked briefly about those of their elderly patients who had agreed to take part in the survey. Much additional helpful information was gained during these interviews, e.g. "watch out for the over-friendly big black dog" or "the husband drinks and gets aggressive about students".
3. Semi-structured interviews were conducted by the investigator both at home and in the survey clinic, in order to obtain the following information.
   (a) General medical and social history. (Proformas 1 - 5 were given orally and were completed by the investigator on behalf of the subject).
   (b) Psychiatric impression
   (c) Attitudes to marriage

TABLE 16

Stages of the Original Surveys: Patient/Research Team Contact

st Survey 1969-1971

Stage	Place	Person	Purpose	Duration	Result
1	Home	Health Visitor	To explain aims and outline of survey	10 - 15 minutes	Co-operation of subject achieved
2	Home	Survey Doctor	To conduct semi-structured interview	1½ - 2½ hours	Complete medical, social history, family relationships and domestic conditions noted. (Psychiatric impression formed)
3	Clinic	Health Visitor Survey Doctor Consultant Geriatrician	To conduct physical and psychological examination	2 - 3 hours	Complete physical examination including X-Ray, urine sample, E.C.G., venepuncture, physiological tests. Psychometric test battery completed. Personality assessment. Personal attitudes discussed. Marital attitudes.
4	Home	Survey Dietician	Dietetic assessment	2 - 3 hours over 1 week	Complete dietary history. Assessment.
5	Home	Survey Doctor Health Visitor	Limited reassessment	20 - 30 minutes	Developments noted
6	Home	Survey Doctor	Review	20 - 30 minutes	
nd Survey (follow-up) 1972 - 1974					
1	Home	Survey Doctor	To review for field collection of morbidity and mortality statistics and the serial application of psychometry	30 - 40	Morbidity, mortality statistics, sociological factors. Changes in performance on psychometric tests.

4. Test Battery. A battery of tests was administered in order to obtain a psychometric assessment of the elderly person.

5. Observation. The elderly person was observed in the setting of his own home in order that an impression should be formed of his family and social relationships.

Survey 1972 - 1974

In the follow-up study of the surviving elderly persons who had taken part in the original study the following information was obtained by observation, interview and psychometric testing.

(a) Changes in psychiatric status
(b) Changes in cognitive functioning
(c) Other relevant changes

Method of Approach

In surveys of this type great care must be taken with the initial approach to the prospective subject, especially when the subject is elderly.

A letter on University headed notepaper signed by the Professor of Geriatric Medicine was sent to each subject explaining the purposes of the survey and asking whether or not a health visitor might call and give an outline of the proposed examination to the subject.

There were no refusals at this stage. The health visitor attached to the research team called on each of the elderly persons. The health visitor was a mature person with considerable experience of elderly people in these districts. In all cases save one she was invited into the prospective subject's house. It is thought that her manner and uniform greatly facilitated entry to the household. Appointments were made at this time, if the subject agreed to co-operate, for the survey doctor to call and to interview the subject at a time most convenient to the subject during the following week, which gave the old person ample opportunity to refuse immediately or to ask a relative or other to refuse on his/her behalf. For the most part

appointments were made for week days but a few were made for evenings and weekends.

The consistent composition of the investigatory research group personnel meant that the management of the interviews, and the physical and psychometric examination of the subjects became easier, more relaxed, and increasingly efficient.

In any psychiatric interview the degree and quality of 'rapport' established between the doctor and subject is of paramount importance. Careful attention to several points assisted in the achievement of optimal conditions.

Calls were made to the old person's home after 11 a.m. since it was soon found that elderly retired people tended not to start their day as early as the rest of the community. A further approach technique employed was that the interviewer, after ringing the doorbell or knocking, stood well back from the front door in order to provide the subject with ample psycho-social space to control and decide upon the most appropriate response to the caller when the door was opened.

Five out of the six stages in patient/ research team contact took place in the elderly person's own home (Table 16) which helped to promote feelings of confidence, relaxation and psychological ease in the subject.

Continuity was maintained as far as possible with the same health visitor in attendance in stages 1, 3, 5, and the same doctor (the author) in stages 2, 3, 5 and 6. As can be seen, these elderly people were in conditions of direct observation by one or other member of the research team for periods varying between six and a half hours to ten hours spread over two to three weeks.

Psychiatric assessment

Table 17 shows the stages in the original and follow-up surveys in which the sources of information, location and type of information obtained are summarised.

The prospective subjects' histories were discussed with their general practitioners and their medical redords were examined in the

TABLE 17

Psychiatric Study

Psychiatric assessment was based on the following informational sources.

Source of information	Location	Type of information obtained
1969 - 1971 General practitioner	G.P.'s surgery	Medical, social, psychiatric background. Family history.
G.P.'s medical records	G.P.'s surgery	Past history and work record
Subject's family	Home	General medical history and background. Family inter-relationships
Subject	Home/Clinic	As described elsewhere and including discussion of attitudes and sexual habits
Test Battery	Home/Clinic	Coloured Progressive Matrices, abbreviated Mill Hill Vocabulary, Extended Ruchill Memory and Information Test, Personality Assessment.
Health Visitor	Home/Clinic	Special conditions, general background information.
1972 - 1973 Re-visit Survey	Home	Specific aims: symptoms enquired after, signs observed, any developments in subject's condition noted.
Review Survey	Home	General psychiatric impression. Repetition of some psychometric tests etc.

general practitioners' surgeries. A note was made of relevant medical history and if physical or psychiatric illness had been previously diagnosed, the diagnosis, duration of illness, and the hospital at which patient had attended was noted, and the appropriate hospital records for each patient were obtained and scrutinised.

Since the subject was assessed both within his or her home, an assessment of the domiciliary background could be made, together with the psychiatric assessment of the patient within the clinical situation.

As well as the immediate completion of the proforma, (see Proforma 2) reports of interviews from the psychiatric standpoint were written up immediately following the encounter. Information from the general practitioners and hospital records, and also the scores on the psychometric test battery, although carefully noted, was not considered until the final diagnosis was made at the end of the total examination, since it was thought that this prior knowledge might influence the initial psychiatric impression.

As has been indicated a full medical, social and psychiatric history was taken from each subject within his own home, save for a few cases when the subject was unable to answer for himself. In these cases as complete a history as possible was taken from the caring relative or attendant who acted as the key informant.

In summary, the collection of data in order to provide a basis for an evaluation of what was to be considered a "case" included :

1. A "present" state examination which was repeated several times in various settings and under various conditions in order to discover whether or not any morbid phenomena were experienced by the patient together with simultaneous observation of their behaviour for abnormality.

2. A clinical history, taken from the subject and other sources, which indicated what symptoms, if any, had occurred during the present and previous phases of life of the subject.

3. Other historical information, most commonly from general practitioner and hospital records.

4. Information from the laboratory investigations which occurred as the consequence of the complete physical examination and information from the physical examination itself.

For each person who exhibited psychiatric symptomatology the following points were considered:

(a) The disease which made him ill.

(b) The extent to which his personal functioning was limited by his illness.

(c) The symptoms he was experiencing.

(d) The length of time he had had the disease.

(e) The length of time he was likely to have it in the future.

(f) The cause of his illness; whether it was chronic and disabling. Its intensity, whether progressive, remitting or recovering.

(g) The prognosis or outlook for the patient.

I. Organic Brain Syndromes

(i) By definition arterio-sclerotic brain syndrome is diagnosed when impairment of memory and intellect is found in subjects who have a history of a 'stroke' or of recurrent epileptiform seizures or confusional episodes or who show focal signs or symptoms indicative of cerebrovascular disease. Most commonly, the dementing process is linked to or observable after a cerebro-vascular accident. The following case exemplifies a typical situation.

Case No. 202 : examined May 1970

Mrs. R. aged 70 was living with her husband in a comfortable, custom-built pensioner's flat. She was well dressed and extremely polite, smoked incessantly and frequently fell into reveries during the interviews, the clinical examination, and psychometric testing. She had been active, well, and housekept competently for herself and husband until she sustained a cerebro-vascular accident the previous year which had caused some left-sided weakness in her arm and hand. Left extensor plantar response was elicited. Her husband had noted deterioration in her memory and habits since the event and now cared for her and the house entirely on his own. These reports of her intellectual deterioration were confirmed in the psychiatric examination andoccasional restless behaviour and disorientation for event were then also observable.

The dramatic onset of this change in her behaviour and intellectual function was directly related to the 'stroke' episode which had caused a previously caring, responsible individual to become dependent for gratification of essential needs on others.

was diagnosed

(ii) Senile brain syndrome when there was evidence of progressive mental deterioration characterised by an "organic" mental syndrome (disorientation, failure of memory and intellect) provided that this was not due to specific causes such as neo-plasms, chronic intoxication or arterio-vascular disease.

Case No. 15 : examined March 1969

Mrs. S., and 87 year old widow, was mobile and tended to wander and therefore was restrained in an armchair with table. She was continuously tended by a housekeeper throughout the day in an immaculately kept three-apartment flat on the top floor of an old tenement. Night care was provided by her two spinster school-teacher daughters who, on alternate nights, slept in her room. These elaborate arrangements for her care had been developed during some ten years as deterioration in her mental state had increased. Mrs. S. was placed regularly on a commode but was occasionally incontinent of both urine and faeces. She was incapable of feeding herself and generally was described as being totally inept at indicating her wishes by those looking after her. The interviewer was unable to make any contact whatsoever with Mrs. S.

No dramatic precipitating physical cause could be found for the present condition of this subject. Her daughters maintained that their mother had always been well until her gradual forgetfulness(which they associated with 'age changes in intellect') had worsened and deterioration in personal habits occurred.

(iii) Other organic conditions comprised acute confusional states associated with known physical illness, and acute or chronic conditions considered to be due to organic brain disease other than senile or arterio-sclerotic.

The following case records illustrate how some cases of organic syndrome might be sub-classified as senile organic brain syndrome unless clinical methods other than psychiatric interview are employed in the determination of the diagnosis.

Case No. 125 : examined December 1969

Mrs. R. aged 84 was a financially affluent widow who had lived alone since the death of her husband some 30 years previously. During conversation she had frequent lapses in attention and memory which were substantiated by scores on the memory and information test. Clinical examination showed evidence of amyo-trophic lateral sclerosis and spinal X-Ray showed extensive cervical spondylitis.

Case No. 87 : examined September 1969

Mr. McF.,aged 71, lived with his second wife on the second floor of an old tenement. He rarely left the house and only in the company of his wife. He was able to communicate for brief intervals and indicate his needs. He took no interest in personal appearance and did not respond to his wife for small services done for him during the interview.

Mrs. McF. was the subject's second wife. His first wife died three years earlier. This marriage had been childless (as had the first). Mr. McF. was described by his present wife, aged 55, as being of extremely quiet personality. She frequently went out at night to visit family and friends and had recently taken a part-time job which left the subject alone for long periods of time.

At interview he was poorly oriented for personal and public events and his memory for recent events was also very poor. It was discovered that Mr. McF. was currently being maintained on unsuitable barbiturates and had been so for the previous two years. Hypertension was confirmed by blood pressure estimation and it was considered that alternative therapy was desirable. When it was suggested to his wife that the general practitioner should be asked to review the therapy, the suggestion was rejected although it had become apparent at interview that the general practitioner had not seen the subject for a number of years. A letter from the survey doctor to the general practitioner suggested that a review of the situation might be in order.

A diagnosis was made of moderate/severe dementia of iatrogenic origin in association with generalised arterio-sclerosis and hypertension.

Roth (1955) in his classification says nothing of how demented the patient must be for the diagnosis to be applicable. When should one consider that the psychosis has begun? Failure of memory may be considered by some to be the first sign but others consider this to be a sign of normal senescence. So it was considered that some qualification of Roth's criteria might be in order, i.e. a criterion for the amount of intellectual deterioration necessary for the diagnosis.

It was also necessary to decide on the degree of dementia present in order that the frequencies of psychiatric disorder in different populations might be compared. The assessment of degree of deterioration was assisted in the organic brain syndrome by the use of a simple memory and information test (see Appendix 1).

Degree of dementia encountered

(a) Mild Subjects exhibiting mild dementia showed variability in concentration, resembling a state of preoccupation often encountered in younger age groups in combination with some recent memory loss of trivial type with occasional "personal and geographical" orientation difficulties. Godd rapport was easily established and maintained; these patients were fully co-operative with all tests and procedures during examination.

Such a mild case is illustrated by reference to the following example.

Case No. 291 : examined November 1970

Mrs. C. was a 72 year old widow of the manse who let one room of her top floor tenement flat to a university student. She went out daily, cooked for herself and looked after her affairs, although the house was untidy and unkempt. She had some memory lapses and persistent lapses in concentration of short duration, was able to talk easily and sociably.

It will be appreciated that this subject, although showing intellectual deficit was still well integrated into society. There was no great deterioration in habits and Mrs. C. was able not only to care for herself but to organise her own affairs with some efficiency.

(b) Moderate A subject was considered to have dementia of moderate degree when as well as some loss of recent memory, there appeared to be some obvious difficulty in concentration. Such a subject also showed fluctuating orientation for time, place and event. Rapport could be established easily but because of the variability of concentration its maintenance was difficult. These subjects could be persuaded to co-operate on physiological tests of respiration, and in the clinical examination they obeyed instructions well and could co-operate in psychometric testing if considerable patience was shown and the instructions to the subjects regarding the test in hand was reiterated until test completion.

If addressed impatiently or abruptly these subjects tended to become confused. If there was no difficulty with their mobility these elderly people frequently exhibited restlessness and could not remain seated for long.

Case No. 21 : examined April 1969

Mrs. G., aged 80, was a sprightly, well dressed woman with a good social response on confrontation. However, after a few questions her loss of memory and gross intellectual deficit became apparent. She had totally no awareness of the interview situation, the time, the date or her age, and also showed an extremely short concentration span. Many family problems arose because of nocturnal wanderings and incontinence which was denied or ignored by the subject.

Mrs. G.'s three married daughters have formed a six to eight week "duty rota" for the care of their mother who stays with each in turn. Although it was suggested that this might have contributed further to her geographical disorientation, her family felt they could not cope with her for any longer intervals of time.

Case No. 201 : examined May 1970

Miss J., aged 84, an elderly spinster of immaculate social decency who was unable to hold thread of conversation longer than two to three minutes. She was attractively dressed and her smiling and socially highly acceptable manner concealed gross intellectual deficit. She lived with a thin, arthritic older sister who managed the household with the assistance of a daily home help and daily visits from a niece. The two sisters lived in a well-kept four-apartment tenement flat which they jointly ownedand which was located in a respectable middle class district.
Miss J. had no anti-social tendency nor any gross behavioural defects.

A great similarity in the management of these subjects by their relatives was evident. This management appeared itself to be a product of the persistent non-response of those moderately demented subjects in the usual social exchanges. If another room away from the hub of the household was available they were 'confined' to its limits, increasing the amount of their social isolation and permitting the rest of the household to function normally.

None of the subjects in the category of moderate dementia was able to live alone. None was able to attend to his or her own essential needs and all were dependent on others and other's tolerance of the deterioration in social habits which invariably was present. They all had such a degree of intellectual impairment as to render themselves incapable of caring for themselves without almost constant supervision and assistance from friends or relatives.

(c) Severe These subjects were observed to be incapable of coherent or sustained speech, of indicating their needs, or of responding to commands. No rapport of the usual type could be established with these patients, although they would sometimes respond to a voice by turning the head or to touch stimuli by body movement. These people led a totally dependent existence.

These points are illustrated by reference to the two following cases.

Case No. 7 : examined February 1969

Miss H. was an 88 year old woman of considerable private fortune who had been tended by an ageing housekeeper and various staff in rotation for the previous fifteen years. She was able to sit in a chair with fixed table but was not able to indicate needs. There was still present the possibility of some little social interaction and the interviewer was able to elicit some co-operation in the Raven's Progressive Matrices by

continuing to ask "What fits in here?" to the astonishment of her attendant who denied being able to make any contact with her.

Case No. 171 : examined March 1970

Mrs. B., aged 83, lived in a comfortable three-apartment ground floor tenement flat in mixed area. She had had innumerable cerebral vascular accidents and was severely immobilised due to her paralysis. Her day was spent in her chair in various rooms in the flat. Her sister, two years younger and disabled with rheumatoid arthritis cared for her well with the assistance of district nurse and home help. Mrs. B. responded as well as she was physically able. Attempts at conversation with her were discontinued since it was evident that she was unable to sustain any verbal intercourse. On testing she showed evidence of gross intellectual deficit.

Such severe cases as these are generally found in mental hospitals or in the long-stay wards of geriatric units and rarely in the community in their own homes, partly because there is never any dubiety in the minds of the medical practitioners about the amount of attention and time which must be afforded to them by the caring attendant or relative.

II. Functional Syndromes

(i) The diagnosis of schizophrenia was considered on the usual basis of presence of thought disorder, hallucinations in clear consciousness, paranoid delusions, emotional flattening, and incongruity of affect.

Case No. 280 : examined November 1970

Mr. McQ., aged 78, lived with his wife in a well-kept two-apartment flat in a poor area. He had recently retired for the second time from a firm of solicitors in whose employ he had been for 50 years. He was well dressed and welcomed the interviewer with appropriate but very formal greeting. At interview he exhibited signs of perseveration, confabulation and echolalia. He spoke of hearing voices which told him to "make up his mind" and "go to bed", etc. These voices were never unpleasant. He had recently seen a beautiful vision of a woman in black garments floating towards him during a walk in the local park and was eager to see this again since he believed that this vision was a saint. (Ecstacy or elation has been said to be less common at this age (Post, 1965) than anxiety or depression.)
Mr. McQ. was a small, obese man with some occasional angina. Although he had married outwith his religion he still attended the Roman Catholic church and took full communion. His wife adamantly denied any history of alcoholism or of previous mental disturbance. No history of aberrant behaviour was known to the general practitioner.

Typical features of ideas of self reference and a persistent persecutory state may be seen in the following subject who also was unknown to her general practitioner.

Case No. 179 : examined April 1970

Mrs. G., aged 74, lived alone since the death of her husband three years previously. She was suspicious and hostile in interview and had obvious deficit of recent memory. She repeatedly reminded the interviewer that her participation in the survey was voluntary but could not be convinced that social security had not given her name for investigatory purposes. The following day she did not recognise the interviewer at the clinic during the course of the physical examination but appeared to be more relaxed and talkative. She was concerned with vaguely philosophical problems. "Religion is needed." "This space business is going too far." Many references were made to "they" and "them" whom she thought to be unknown people who were plotting against her. Hallucinations were denied. Her two married sons had always found her difficult and described her present state as an extension of her previous personality.

The general practitioner and the home help service were notified regarding this subject's condition.

Such a person as Mrs. G. might well have become the type of elderly person who is increasingly cantankerous and suspicious, who withdraws from society often after quarreling with the remaining few relations or interested neighbours, and who never reaches the psychiatrist or other therapeutic agency until the neglect of their property endangers the interests of neighbours.

In both cases the general practitioners had not been aware of their patient's mental state prior to the survey.

(ii) Paranoid states refer to markedly suspicious, hostile or withdrawn individuals from whom definite delusional ideas could not be elicited.

Case No. 183 : examined April 1970

Mr. M., aged 75, was a plausible, pleasant and attractive old man. He outlined to the investigator a lurid history of attempted and successful litigation against the Glasgow Corporation "giants". The departments of Housing and Transport were currently defending law suits brought by him.Mr. M. had been a builder's labourer until the age of 55 when he had fallen on a Corporation bus and never worked again. He still wore a soiled cervical collar. His present projects included a suit against the Department of Social Security and the National Health Service. There was some change in his ambitions to "take on Goliath" in that he was now directing his attentions and complaints against specific individuals in Social Security (i.e. Officer) and the National Health Service (i.e. a notable Professor of Medicine). There was a recent development in the correspondence of a more mischief-making and vituperative element.

With the slightest encouragement he displayed cupboards and drawers filled with carbon copies of letters of complaint which he had written to Her Majesty the Queen, the Prime Ministers of the previous twenty years, his Member of Parliament,(on whom he had a separate dossier) Aneurin Bevan, Ernest Bevin, Margaret Horbison, Richard Crossman and Dickson Mabon. Some of the loss notable had visited him and a list was kept of distinguished visitors who had interviewed him at home.

The general practitioner found him an "agreeable old chap" whom he had treated infrequently over the previous 30 years with analgesics for backache and antibiotics for upper respiratory infections. His preoccupations were unknown to his general practitioner and there was no reference to any behavioural difficulties in any of his many orthopaedic or general medical records.

(iii) Affective Disorders and Neurosis Cases showing one or more of the following were assigned to this category. Persistent or frequently occuring spells of depression, anxiety, tension and irritability, incapacitating phobias or panic attacks, hypochondriacal preoccupations and/or a co-existence of a subjective awareness of malaise which the subject was able to distinguish from his normal condition, hysterical conversion symptoms or exaggeration of a physical disability.

It is suggested by Roth (1955) that the term 'endogenous' should be applied also to those cases which exhibit marked retardation, agitation of mental function accompanied by depressive or hypochondriacal ideas which are held with delusional or quasi delusional force or those who are experiencing sustained depressive mood change accompanied by early morning wakening, diurnal variation of mood, and show lack of responses to environmental influences.

Further sub-divisions were made according to the duration of the illness and its severity but since it was often impossible in practice to differentiate between reactive and endogenous depression . These terms were omitted because there were invariably so many valid physical and social reasons for depression in the elderly people. Further, an attempt has been made to classify the degree of depression present whether mild or moderate/severe.

In differentiating neurosis from personality disorders the interviewer tried to establish that there existed a subjective awareness of the malaise which the subject was able to distinguish from his normal condition.

An attempt was made also in the functional disorder classification to group by degree.

(a) Mild Psychiatric abnormality was present, i.e. subjects were noted as having signs or symptoms but these were easily controllable without recourse to drugs or doctors. Often these subjects required social support of one kind or another.

Those who were depressed were judged to be either mildly or moderately/severely depressed. Thos mildly depressed were observed to have a persistent disorder of affect but were not thought to require any therapeutic intervention of any kind.

Such depression was commonly seen in active elderly people who had retired during the year prior to interview and who had begun to tire of the "holiday" feeling associated with their new status and sensed instead feelings of boredom, loss, uselessness and futility. Such factors were easily discernible as in the following case.

Case No. 48 : examined May 1969

Mrs. B., aged 72, was a local character, well known in her district for her commonsense and baby linen shop which she ran for 40 years with considerable flair and success. Originally of Polish extraction, she married a Scot and settled in Scotland. She had been a widow for many years. Her two daughters whom she reared without assistance of any kind were married and lived in Canada. Her grandchild lived with her whilst at University but had embarked on a world trip which coincided with Mrs. B.'s retirement from her business, three months prior to survey.

Although surrounded by bits and pieces of hand work, tapestry etc., she felt very useless and was introspective and depressed. She seldom smiled which was not typical of her since she had been known previously to the interviewer from contact with her as a customer over the years.

The diagnosis of depression during a state of readjustment to retirement was made. In light of her previous good personality it was thought that she would recover spontaneously. This prognosis was confirmed at the interview conducted three years later when the adjustment had been made. Mrs. B. seemed happier and more content than in 1969. She was slower then in her movements but appeared more affable and interested.

A further case shows how such retirement depression of mild degree can be complicated by intra-marital difficulties as a result of the spouse's intolerance to the new status of the retired person and his continuous presence at home.

Case No. 89 : examined September 1969

Mr. A. was a fastidious 66 year old, highly intelligent and recently retired man. He held a position of responsibility as the despatch manager of a large departmental store in the city. He had retired in the year prior to the survey interview and had intended during his retirement to sit back and take up "some hobby or other". He was interviewed in the same room with his wife who maintained a continual barrage of abuse and deprecatory comments, obviously oblivious to the presence of a third party. "I'd never lend myself for a survey". "I am the one who is ill", etc. etc. At the clinical interview Mr. A. said that his wife had found it tiresome to have him around all day although he appeared to do more than his share of household chores. He experienced frequent attacks of dyspnoea and occasional vertigo, lassitude and feelings of hopelessness. There was no evidence of blood pressure or electrocardiograph abnormality. All physical examinations were negative.

It was found at re-interview three years later that Mr. A. had circumnavigated this domestic conflict situation by getting another job.

(b) Moderate/Severe The functional disorder interfered with the normal pattern and quality of life and caused distress to the individual or those involved with him or her or gravely affected their ability to associate with others. These subjects invariably required therapeutic intervention of some sort and the subjects' general practitioners were appropriately informed.

Moderate to severe depressive states were often seen to accompany or herald serious physical illness.

Case No. 86 : examined September 1969

Mr. W., aged 70, was a very ill-looking, obese man who was in great psychological need. He was drinking more than he ever has done before in his life and felt that the "feelings of mental anaesthesia" which were the result of alcohol dampened his feelings of desolation, anxiety and loneliness. He had few social contacts other than "bar-flies". He was very depressed, feared death and illness or the onset of some incapacitating disease which would mean total dependency, and he said he would prefer to "snuff it myself". His next door neighbour cooked his mid-day meal twice a week but served it to him in his own house. He had several coughing attacks and smoked incessantly.

At the survey's reassessment in September 1972 it was found that Mr. W. had died in the Chest Unit of a local hospital on 15th January 1971. Cause of death was listed as lung mestastases from carcinoma of bladder.

Complex, almost insoluble problems arise when a combination of social circumstances, physical illness and familial disharmony occur together. Poor social circumstances need not always be the result of lack of finance.

Case No. 85 : examined September 1969

Mrs. S. aged 72. This widowed lady with gross osteoarthritis of both knees and obesity lives with unmarried obsessional brother-in-law in their jointly owned four apartment immaculate tenement flat. She has not been out for five or so years due to her lack of mobility. (There were 48 steps between the close mouth and street level, and a further 60 steps to the front door. She sat immobile, depressed and continually eating from a large box of chocolates. She said that she had lost interest in things and that she was "awaiting the end". Although a home-help was present, the brother-in-law was scrubbing the floor after the departure of the coal man. He maintained a persistent harangue of abuse about the coalman and Mrs. S. As the interviewer left Mr. S. asked if it was possible that Mrs. S. might be removed to hospital. It was pointed out to him that apart from depression, immobility, hypothyroidism which was controlled therapeutically, and inappropriate accommodation, she appeared to be not in need of hospitalisation but in need of a new flat. This advice was adamantly rejected.

At the survey's reassessment in September 1972 it was found that Mrs.S. had been admitted to a long-stay geriatric ward in April 1971 because of "social" reasons and because her brother-in-law had required a minor surgical operation. Mrs. S. died on 6th September 1971 of broncho-pneumonia, immobilisation, left hemiparesis and hypothyroidism.

Most of the subjects who were diagnosed as having depression had mixed affective states, i.e. also showed anxiety, but the predominant diagnosis determined the final classification.

Occasionally, well-meaning relatives compound an intolerable social situation with ill-placed abuse and complaints, and the elderly person is incapable of extricating him or herself from the resultant chaotic situation. Depression, agitation, and the commonly seen elderly person's dilemma as to which agency to turn to for help, are all illustrated in the following case.

Case No. 264 : examined October 1970

Miss W., aged 66, was a brightly dressed lady in trousers, living in appalling slum tenement conditions in an aged building with evidence of rat infestation, dampness, holes in the walls due to rotting plaster. One room had its ceiling down on the floor which exposed electric cables. This lady knelt with one leg on a chair during interview in order to relieve the severe pain she experienced in her right groin. She also kept her hand over her left ear because of earache. The room she occupied was clean, garishly bright with innumerable gaudy, Roman Catholic impedimenta all of which had been manufactured in the United States of America. There were piles of religious magazines, and books on yoga and spiritualism. All this literature also had emanated from the United States of America.

Miss W. was very rational despite the rather histrionic presentation, although she appeared very anxious and wept a great deal. Sixteen

months prior to interview she had slipped and sustained a fractured femur which had resulted in a lengthy period in hospital. A solicitous but aggressive sister had come from the United States of America for a short while to care for her after her discharge from the orthopaedic ward, and was appalled at her sister's living conditions. Unfortunately the American sister fell foul of Miss W.'s general practitioner who had, after an altercation, removed the comparatively harmless Miss W. from the practice list, designating her as a nuisance patient. The patient's sister returned to America and Miss W. had been without a general practitioner for nine months. On examination she appeared to have severe osteoarthritis of the right hip, purulent otitis media, vulvitis and urinary tract infection. Miss W. had attempted to get treatment from local doctors who, once they heard she had been designated a nuisance patient, (which she did not appear to have the perspicacity to conceal) told her their lists were complete.

The depression and agitation was related to the untreated chronic physical illness and to the social ills which impinged on her. The situation required some active intervention by the interviewer who informed the local Executive Council. This resulted in the treatment of the diagnosed illness and the placement of her name on the lists of a neighbouring general practitioner. The Social Work Department were also informed.

Anxiety States

Mild phobic anxiety is exemplified by the following case.

Case No. 151 : examined February 1970

Mrs. H., aged 67, living in comfortable circumstances with her husband and unmarried daughter, was greatly incapacitated by feelings of claustrophobia and agoraphobia which dated from a myocardial infarction sustained while attending a Church Service the previous year. She experienced the usual psychosomatic sensations of palpitations and sweating, accompanied by feelings of dread and impending doom, and was unable to go out of the house alone. The general practitioner was unaware of this development and when informed, suitable tranquillisers were prescribed.

Three years later at reassessment Mrs. H. had no recurrence of this phenomena.

Whereas, acute severe anxiety states are shown in the following two cases of female subjects who had experienced distressing physical signs but had concealed these from the general practitioner. Both these individuals seized the opportunity of the survey for the examination of their complaints. One woman had a breast tumor and the other case is sited below.

Case No. 292 : examined December 1970

Mrs. G., a financially-secure widow of 66 years, was extremely agitated. She appeared at her door wearing only a dressing gown and was extremely aggressive and antagonistic towards the interviewer, brushing aside the proferred evidence of identity and statement of intent and insisting

upon the examination of her abdomen. On examination a discoloured tumor in the right upper quadrant indicative of thrombosed incisional hernia was observable. The patient was reassured and told to make an immediate appointment with her general practitioner. It was felt that because of her anxiety rapport could not be fully established at that time. At the second interview, eight days after the original interview, she was stunned and depressed. She was tearful and had flattened affect. She had been informed two days previously by the police that her only son, a University student, had attempted suicide after being jilted by his girl friend and had been admitted to a mental hospital in Edinburgh. She had visited him there but was unable to take in what either he or the doctors told her because of her great agitation. She was tearful, tremulous and incapable of action. The general practitioner was made aware of this development in his patient's situation and became immediately therapeutically involved.

Other Disorders of Function

(iv) Other disorders were mental subnormality, marked personality deviations or hypochondriasis without overt anxiety.

Mixed Pathology

Only two of the 300 subjects exhibited unequivocal mixed pathology having two distinct diagnoses but these were listed only once on the Table of psychiatric morbidity.

Case No. 1 : examined February 1969

Mrs. K., aged 67, lived with extroverted husband and shared three-apartment Corporation house and garden with her widowed sister. She was examined one month after she had sustained a cerebro-vascular accident and had been in bed since the episode, although there appeared to be no residual hemiplegia. Her husband did a great deal of talking, speaking of her previous incapacity to walk, and failing memory. By contrast he was exceptionally fit, did all the housekeeping and had many interests one of which was playing the saxophone. Mrs. K. remained reticent until husband left her alone and then she talked freely. She was of a diffident, introverted personality and on close questioning had a little loss of recent memory. She also had feelings of inadequacy and described herself as depressed.

A diagnosis was made of mild dementia following cerebral insufficiency episode but that also the patient was depressed.

This subject was found to exhibit two types of psychiatric abnormality and there was difficulty in appropriately listing this case according to the previously determined principle of predominant diagnosis, since it was not clear which of the two diagnoses was the most dominant. The decision was taken to list this subject as an arteriosclerotic dementia of mild type in view of the physical history.

Case No. 238 : examined August 1970

Mrs. McD., aged 80, lived with bachelor son in three-apartment rented flat in poor area. Flat was exceptionally well furnished and tended on alternate days by each of two married daughters. Mrs. McD. was very still and flat in affect, responding slowly to questions and remaining impassive throughout interview. The two married daughters insisted on being present at all stages of examination except for a short time in the clinic at hospital when no change in Mrs. McD.'s demeanour was noted. From the general practitioner's account and records Mrs. McD.'s daughters responded in a highly hysterical and abusive manner to their mother's needs which had for many years become varied and increasing in demand and frequency to all who associated with her including the general practitioner who had therefore instituted a very high dosage of Valium, and so had iatrogenically depressed her mood in the course of damping down her hysterical emotional demands.

A diagnosis was made of iatrogenic depression in a psychogenic psychotic personality. This subject was listed as a long-standing hysterical personality.

It is of interest that when in December 1973 an attempt was made to re-interview Mrs. McD., two letters were received by the investigator from Mrs. McD.'s daughters strenuously refusing re-interview access.

Subject/Interviewer Relationship

Two points are worth making. Firstly, these community residents were neither an institutionalised population nor a group of volunteer subjects. They were individually invited to co-operate. Secondly, under normal circumstances, the clinic or doctor's surgery is the place where the patient is the one who appeals for help but in this study the relationship was reversed.

As Hagnell (1966) has observed in similar situations, the interviewer-doctor is an unfamiliar phenomenon. Here the doctor is the intruder and the subject is free to collaborate or withdraw at any point in the interview or examination.

In this reversal situation problems may occur, aggressive feelings may be evoked resulting in withheld information which defeats the purpose of the interview. These effects most commonly arise from tension in interfamily relationships.

Privacy was sometimes difficult to achieve in the home interview because of the smallness of the houses. It was also difficult to suggest tactfully the displacement of a relative of the subject from his/her own living room, although in most cases at the first hint the suggestion was willingly complied with. Distressful aggressive reactions were rarely

encountered and although when they did occur the interviewer was tempted to terminate the interview earlier than usual, the possibility of observing conflicts and their expression, tensions, habits, inter-reaction with others and attitudes to the community and society at large amply rewarded the interviewer's perseverence during such exchanges. Ample time and the avoidance of abrupt questioning proved rewarding in almost all cases.

Marital Attitudes and Practices

An open-ended structured interview (see Proforma 2) was included in the collection of psychiatric and social data and conducted with a sub-sample of those subjects who were thought to be currently married. There were three groups of questions, the first group being concerned with the subjects' appraisal of their marriage, the second group with sleeping arrangements, and the third with sexual practices. The responses were recorded verbatum on the interview schedules.

Social and Personal History

A proforma (Proforma 3) was constructed in order to elicit the following information. Family background and marital history, education, previous and present occupations, religious beliefs, occupants in the household, social contacts, housing, income, hobbies and pastimes.

The elderly person responded orally to these questions and the responses were recorded by the investigator.

Materials

Psychometric Test Battery

At the clinic the following tests were applied.

1. Raven's Coloured Progressive Matrices A, Ab, B.
2. The Mill Hill Vocabulary Test (Short Form).
3. A Memory and Information Test.
4. A Personality Inventory (MPI short version (Eysenck).

Raven's Coloured Progressive Matrices (1965)

This measure consists of 36 perceptually presented tests. Each test consists of a design or 'matrix' from which part has been removed. The individual being tested has to examine the matrix and decide which of six pieces given below is the right one to complete the matrix. Twelve items make up a set and there are three sets lettered A, Ab, B. The first problem in the first of the three is intended to be self-evident and it is succeeded by thirty-five problems of increasing difficulty. The themes employed are (a) continuous patterns, (b) analogies between figures, (c) progressive alterations of patterns, (d) permutations of figures and (e) resolution of figures into constituent parts. They are designed to attract and hold the attention of the individual to be tested who may be a child or an elderly person. Each problem is printed on a brightly coloured background. This makes the nature of the problem to be solved more obvious without in any way contributing to its solution.

Statements by Raven, op cit., suggest that they are a means of estimating a person's innate educative ability, as a test of a person's present capacity to form comparisons, reason by analogy, and develop a logical method of thinking regardless of previously acquited information.

Spearman and Vernon (Vernon, 1960) consider the Raven's Coloured Progressive Matrices a test for measuring education or "g" factor of intelligence.

The Mill Hill Vocabulary Scale (Short Form) Raven, 1958.

Vocabulary is now generally regarded as a useful test for dementia, not because of the indication it provides for basic intellectual ability, but because of the qualitative differences noted between the performance of normal old people and those suffering from organic brain syndrome.

The Mill Hill Vocabulary Scale assists in the record of a person's present recall of acquired information and ability for verbal communication.

The standard scale consists of 88 words divided into two parallel series of 44 words known as Set A and Set B. For qualitative and clinical work it is advised (in the extended guide to the use of the Mill Hill Vocabulary Scale with the Progressive Matrices Scales (op cit.) that the individual under test should attempt to explain every fifth word on the lists which word is suitably indicated by asterisk for this purpose, and the resulting replies noted in verbatim. This manner of application is referred to as the definitions form of the test and consists of 17 words which present the subject with increasing definition difficulty. Each of the 17 words of the short vocubulary scale, if carefully explained by the subject, is said to be equivalent to a score of five on the whole Mill Hill Vocabulary Scale. It has been said (Mayer-Gross, 1969) that among non-verbal tests "Raven's Matrices Test is standardised for the British population of all ages and can be applied to children and adults of any nationality, whatever their native tongue; that it can be combined with Raven's Mill Hill Vocabulary Scale and from the two together an assessment can be made of the native intelligence of knowledge acquired by education and of intellectual deterioration".

The Memory and Information Test (Appendix 1)

This brief, objective method of determining the presence of organic brain syndrome was derived from three clinical tests of the sensorium, viz. Roth-Hopkins Information Test (Roth and Hopkins, 1953; Hopkins and Roth, 1953); the Intellectual Rating Scale (McAdam and Robinson, 1956; Robinson, 1965) and the Mental Status Questionnaire

(Kahn et al. 1960) in the absence of a standardised, well-validated, modern British memory and information test with known and well-documented retest reliability.

These relatively simple tests have been seen to be of great value in recent years and are applicable in the clinical situation. Such questionnaires have been found in a number of inquiries to differentiate with some degree of reliability between patients with cerebral disease and those who are suffering from functional disorder (Hopkins and Roth, 1953) and also between demented and non-demented subjects. These tests provide an index of impaired orientation and memory for recent events and are useful as screening tools for the detection of confusional and dementing states.

This derived questionnaire was useful in providing a quick, simple method of information and memory testing and also acted as an aid to diagnosis in elderly patients. It consists of 31 questions of maximum score of 35 points, concerned with personal, temporal and geographical orientation, elementary calculation function of the tested subject, and his recognition of familiar people, knowledge of current affairs and his short-term memory recall for simple information.

The Maudsley Personality Inventory (Short Version) Eysenck, 1958. Proforma 2.

This inventory is of a questionnaire type designed to measure two personality dimensions, i.e. neuroticism (or emotional instability) and extraversion/introversion. Its development over several years on the basis of large scale experimental and statistical studies and its standardisation on large samples of the British population have led it to be regarded as one of the best validated and documented tests of these personality factors.

Although the inventory is suitable for, and has been widely used in clinical investigation, there has been little normative data derived from aged populations.

Instructions in the manual for this inventory (Eysenck, 1959) state that the inventories must be completed by the test subjects themselves but it was decided in this study to ask the questions orally, and for the interviewer to record the responses on the inventory forms during the course of the test administration because many old people show

physical disabilities such as defects of visual acuity, difficulty in co-operating in a paper and pencil test due to finger joint immobility due to osteo- and rheumatoid arthritis, Dupuytren's contracture or paralysis most commonly of hemiplegic origin, or the presence of senile tremor, or Parkinsonism.

Classification of Social Class

The classification of social class was based on the Registrar General's Classification of Occupations (1960) which distinguishes five 'social classes'.

I Professional occupations
II Intermediate occupations
III Skilled occupations
IV Partly skilled occupations
V Unskilled occupations

These classes are intended to reflect 'the general standing within the community of the occupations concerned'. Occupations in Classes II, III and IV are also further divided into such sub-classifications as 'manual', non-manual' or 'agricultural'. In the analysis here the main differences that emerge are between what can be described as the 'middle class' and 'working class', the former being the most of the non-manual occupations - the Registrar General's Social Classes I, II, and III non-manual and the latter almost entirely manual - III manual, IV and V. Men and single women are customarily classified on the basis of their main occupation. Married and widowed women are classified according to their husband's main occupation.

Data Analysis

Data from the first survey was manually analysed. In 1974, following the completion of the second 'follow-up' survey, the psychiatric impressions of each of these 300 subjects were coded and loaded on to a computer disk (IBM system 813) and the Social Services Statistical Package was utilised in order to examine the results from the 1969 survey with regard to their relationship to 32 variables available from material gathered exclusively by the author and from that of colleagues in the survey.

Variables (from Proformas 1 - 5)

1. Age
2. Sex
3. Marital Status
4. Social Class
5. Vocabulary Score (abbreviated Crichton Vocabulary Test)
6. Raven's Coloured Progressive Matrices
7. Calculation Ability
8. Temporal Orientation
9. Personal Orientation
10. Geographical Orientation
11. Interview Appreciation
12. Memory for Distant Events
13. General Knowledge
14. Folate Status
15. B12 Status
16. Physical Disability
17. Mobility
18. Smoking
*19. Central Nervous Systemic Disease
*20. Arterio-sclerotic signs, angina, E.C.G. abnormalities, claudication, etc.

Adequacy of Dietetic Intake

*21. Calories
*22. Protein - potassium
*23. Iron
*24. Calcium
*25. Potassium
*26. Vitamin D
*27. Vitamin C
*28. Thiamine
*29. Riboflavin
*30. Nicotinic Acid
*31. Number of hot meals per week
32. Social circumstances, i.e. living alone or not

* Data collected by research dietitian and other medical colleagues.

Some Problems

The problems in methodology encountered in the application of various screening procedures to the elderly are occasionally mentioned in the literature but seldom discussed in any detail. Little has been written on the performance of normal elderly persons on tests of Extraversion and Neuroticism as a recent review of the literature indicates (Savage 1972). The aim of this part of the study is to describe the difficulties met with in an attempt to apply the Maudsley Personality Inventory (Short Version) Eysenck 1958) to a sub-sample of 100 elderly people, i.e. part of the research sample of the 300 elderly people.

It is not usually possible from inspection of self-completed forms to judge whether or not difficulties in understanding the items were experienced by the subject, but in this study because of the method adopted, which was to read the items of the questionnaire individually to the subjects and mark them in accordance with their answers, it was observed that hesitancy and some difficulty was being experienced by the subjects in answering the items, and it soon became obvious that there was lack of comprehension of a number of items. These items were noted, together with the case number of the subject. After the original 12 items had been completed, those items which had caused difficulty to the subject were repeated, the subject being asked to give his or her interpretation of the item. The interpretation was also noted verbatim. Each item was then explained to the subject in a pre-determined set manner. Answers and comments were again noted.

The study sample of 100 subjects was found to consist of four groups.

1. Two people out of the 100 tested could not complete the inventory at all despite explanation. One was an extremely garrulous man and the other was a woman with poor visual acuity who was also very deaf.

2. Twenty-three people showed psychiatric abnormality. Comments and scores of these individuals were discarded for the purposes of the present study.

3. Forty people completed the inventory without difficulty. This group in the future will be referred to as Group A.

4. Thirty-five people could not complete the inventory originally but managed to do so after the set explanation. This group will be referred to in the future as Group B.

Table 18 compares the two tested groups by age, performance scores on Progressive Matrices, Mill Hill Vocabulary and on the 35-point Memory and Information Test (the research questionnaire devised in the department to assist diagnosis in organic brain syndrome).

TABLE 18

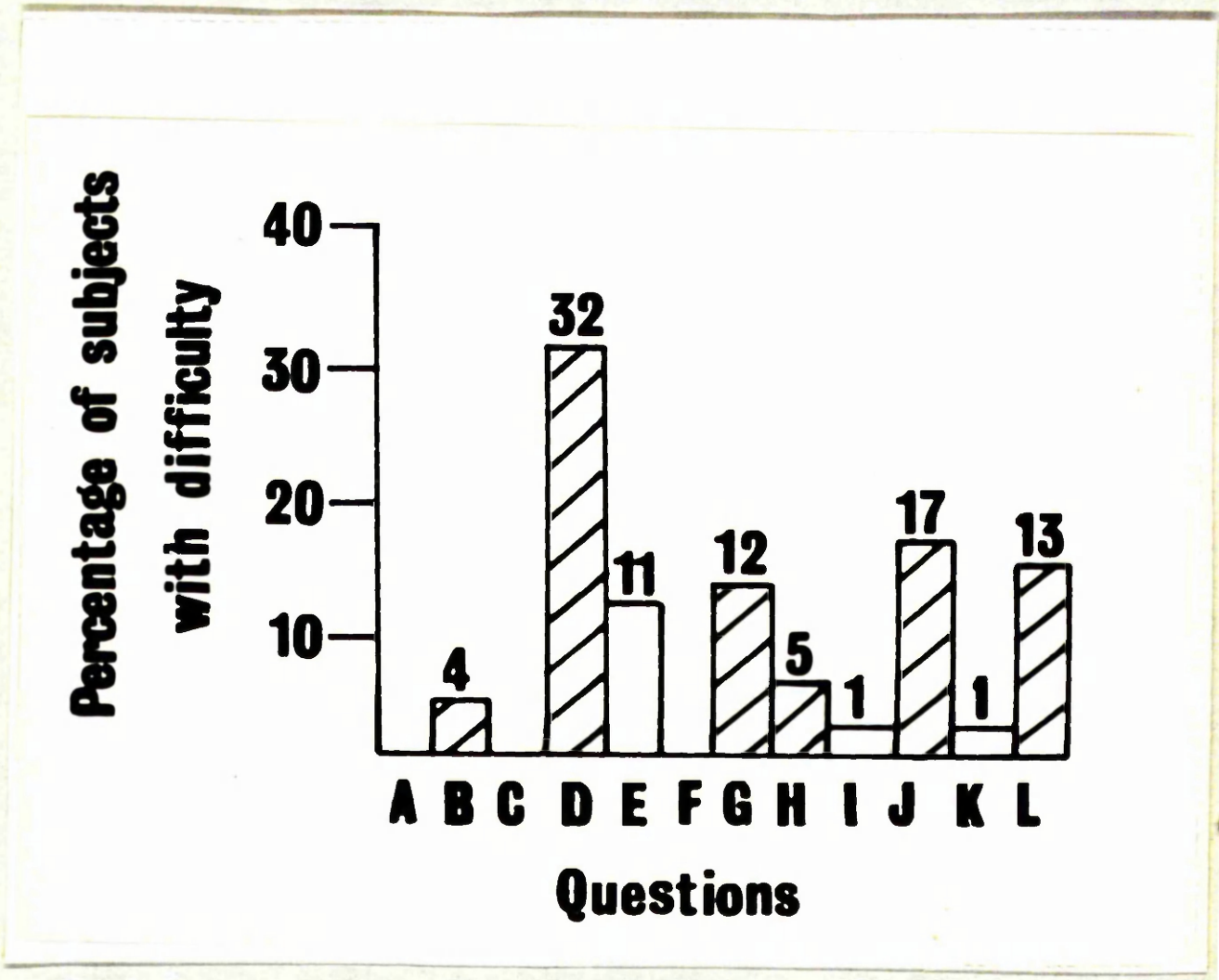
Short M.P.I. : comparison of two tested groups (Scores on Raven's Matrices, Mill Hill Vocabulary (Short Form), Memory and Information Test)

Difficulty	A		B	
Number	40		35	
	Mean	S.D.	Mean	S.D.
Age	73.9	5.9	75.3	4.1
Progressive Matrices A. Ab. B.	21.3	7.5	20.05	5.1
*Mill Hill Vocabulary (abbreviated)	10.4	2.8	8.3	2.5
Memory and Information Test	31.5	3.3	29.7	4.9

* Difference significant at five per cent level.

Only the Mill Hill Vocabulary Test Scores showed a significant difference at the five per cent level. This suggested that those experiencing difficulty might be less verbally intelligent than those who did not.

Figure 2 shows individual questions of the M.P.I. (Short Version) considered in terms of percentage of elderly subjects who experienced difficulty in answering them.



Legend : Figure 2

Striped blocks = $\frac{E}{I}$

Open blocks = $\frac{N}{S}$

Figure 2 considers the individual questions in terms of the percentage of subjects experiencing difficulty in answering them. The items B, D, G, H, J, L, refer to the Extraversion/Introversion dimensions of Personality. The other items, A, C, E, F, I, K, refer to the Neuroticism/Stability Personality dimension. The suggestion that the initial failure to answer some of these items might lie in the vocabulary being used was supported by analysis of the interpretations given by the subjects.

Question D : "Are you happiest when you get involved in some project which calls for rapid action?" Thirty-two per cent of people in Group B, that is those who experienced difficulty in answering this question, confused the word 'project' with 'protest'.

Question G : "Do you usually take the initiative in making new friends?" The word 'initiative' was not understood by all those in Group B.

Question J : "Would you rate yourself a lively individual?" The word 'rate' was misunderstood by the subjects who tended to restrict its meaning to local authority rates. (In Glasgow the citizens pay their 'rates'; they do not use the word as a measure of their own activities).

Question L : "Would you be very unhappy if you were prevented from making numerous social contacts?" The phrase 'numerous social contacts' was not understood by any of the subjects within Group B.

Question H : "Are you inclined to be quick and sure in your actions?" All those in Group B could not comprehend this item. One old lady said it was "too highfalutin" a question.

Question B : "Do you prefer action to planning for action?" Those in Group B said they could not get the point of this question.

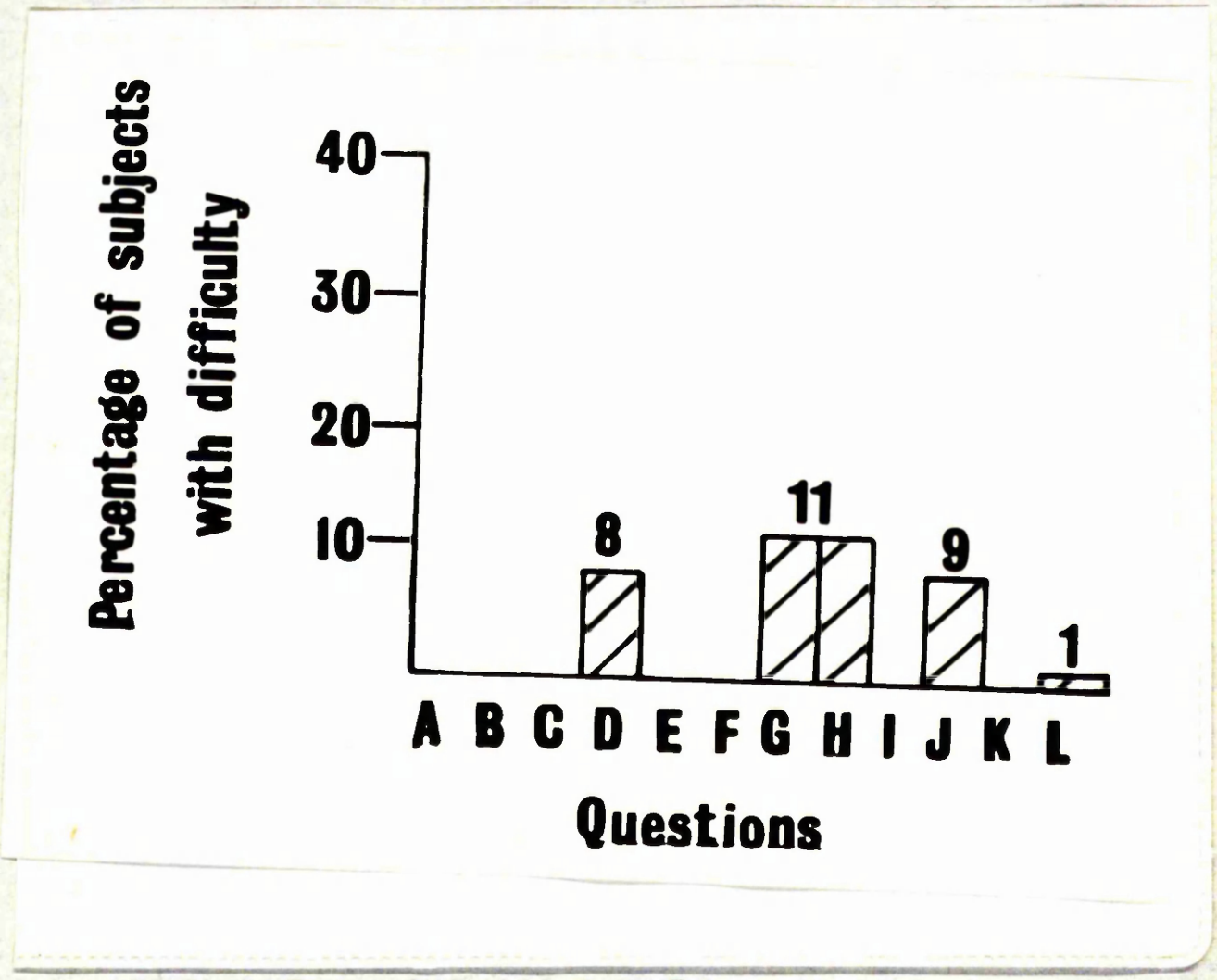
Question E : "Are you inclined to be moody?"

The hypothesis that the initial failure to answer these items might lie in the vocabulary being used, was supported by the definitions of 'moody' given by the 11 per cent who experienced difficulty with this

question. These ranged from 'very difficult to get on with', 'one who doesn't care for others', 'can't be bothered putting on a front'. None of these definitions corresponds precisely with every-day usage south of the border or with the definition given in the Oxford English Dictionary (1969) but these definitions certainly do correspond to local usage of the word.

An attempt was made to simplify the vocabulary of the inventory so that the items causing difficulty would be understood by everyone interviewed.

Figure 3 shows individual questions of the modified M.P.I. (Short Version) Eysenck, S. and Eysenck, H., 1964) considered in terms of percentage of subjects who experienced difficulty in answering them.



Legend : Figure 3 Striped blocks = $\frac{E}{I}$

Another inventory - Eysenck Personality Inventory (W) (Eysenck, Sybil B., 1969) which used simpler language and had been used as the 'set explanation' in the original testing, was used as a translation key in order to reword the Maudsley Personality Inventory 'difficult' items to make them easier of comprehension but without changing in any way the sense of the item.

This modification of the Maudsley Personality Inventory was then given to a further group of 75 normal elderly people from the parent survey with the following results.

There appeared to be no difficulty in comprehension of this inventory. However, a further complication which had been hinted at in the initial investigation appeared much more clearly. A different type of difficulty was experienced when answering questions D, G, H, J, L (refer to Figure 3). Here again the main problem occurred with those items directed to measure the degree of Extraversion/Introversion of the individual.

Question D (with which eight per cent experienced difficulty): The subjects qualified their answers by the following comments. "I used to but not now". "Can't stand excitement now". "I have no pressure to be like this now". "Can't act quickly since I've slowed down". "Not many opportunities like that come my way".

Question G (with which 11 per cent had difficulty) evoked responses such as "I never make new friends now". "I used to be very outgoing but not now", and "I can't trust anyone nowadays". Also, "These questions are not really relevant to my situation".

Question L evoked answers "I never get the chance to", and "That question is not relevant to me and mine".

Question H (with which 11 per cent experienced difficulty) evoked replies - "Not since 'the arthritis', 'the tremor', 'the stroke'" etc.

There are difficulties in the use of personality inventories, and these difficulties vary with the different kinds of persons to whom they are administered (Eysenck and Eysenck, 1964). However, even with subsequent simplification and rewording, five out of the six questions which were directed to the measurement of Extraversion/Introversion Personality dimensions caused difficulty to various members of the

research sub-sample of elderly subjects, because of the irrelevancy and inappropriateness of these items to the elderly person's situation.

The Maudsley Personality Inventory and other Eysenck Personality Inventories are constructed to draw conclusions about an individual on the basis of his self-description on a number of items. The questions asked that determine the degree of Extraversion are partly dependent on the extent to which an individual is with and enjoys being with other people, and questions that influence the Neuroticism score are partly dependent upon the extent to which the individual commonly experiences physical distress. It is unfortunate that many of the Extraversion/Introversion questions in the Maudsley Personality Inventory, Short and Full Versions, should be inappropriate to the old person's personal and social contexts, since this would be an extremely valuable screening procedure in medical and psycho-social situations.

It is prerequisite of the transference of a diagnostic measure from one age group to another, be it physical or psychological, that an investigation should be carried out to examine the extent to which the original measure and its subject matter are commonly understood by, and applicable to, the second age group.

It is therefore suggested that the Maudsley Personality Inventory and the other Eysenck Inventories in use at the present moment are in the position of diagnostic measures which require some adaptation in their use with the elderly. Because of the intrinsic problems in the methodology and in the application of this test (MPI Short Version) its omission was considered advisable since results obtained in this study could not confidentially be correlated with those values given in the manuals for the assessment of these dimensions of personality.

PREVALENCE OF PSYCHIATRIC ILLNESS AMONG THE ELDERLY AT HOME

Introduction

Each of the 300 subjects who, after the complete examination was found to have psychiatric disorder, was assigned to the appropriate diagnostic group.

Some cases were of mixed presentation but were classified according to the predominant and primary diagnosis.

The following Table 19 of psychiatry morbidity shows (i) the main diagnostic groups, with (ii) the severity of the disease according to criteria previously defined (p.57) (iii) the numbers of males and (iv) females between the ages of 65 and 74 years and of 75 years of age and over who exhibited conspicuous psychiatric disorder during the first survey 1969-1971. The final column shows the total numbers of males and females of all ages who were considered psychiatrically abnormal.

TABLE 19

PSYCHIATRIC MORBIDITY
Number of cases with psychiatric disorder in the 1st Survey (1969-1971

(i)	(ii)		MALES (N=83) (iii)			FEMALES (N=217) (iv)			TOTAL (N=300) (v)
		Age	65-74	75+	Total	65-74	75+	Total	M & F
			N=50	N=33		N =111	N=106		All Ages
		No.	13	11	24	22	25	47	71
Organic Brain Syndrome									
Arterio-sclerotic and	Mild		2	5	7	3	3	6	13
senile dementia	Mod		2	1	3	3	6	9	12
and other	Sev		0	0	0	0	3	3	3
	Total		4	6	10	6	12	18	28
Affective Disorders									
Anxiety	Mild		0	1	1	0	0	0	1
	Mod/Sev		1	1	2	1	1	2	4
	Total		1	2	3	1	1	2	5
Depression	Mild		3	0	3	3	4	7	10
	Mod/Sev		2	1	3	6	3	9	12
	Total		5	1	6	9	7	16	22
Manic/Depressive Psychosis			1	0	1	1	1	2	3
Paranoid State	Mild		0	0	0	1	1	2	2
	Mod/Sev		1	1	2	1	0	1	3
	Total		1	1	2	2	1	3	5
Other: Personality Disorder			0	0	0	1	1	2	2
Mental Deficiency			0	0	0	1	0	1	1
Eccentricity			1	1	2	0	1	1	3
Other			0	0	0	1	1	2	2
	Total		1	1	2	3	3	6	8
ALL DISORDERS	TOTAL		13	11	24	22	25	47	71

The initial sampling procedure (the discard of every second, randomly-drawn name from the Executive Council lists of potential subjects in the 65 to 75 years of age group was designed to obtain an equal number of subjects in the 75 and over age group) necessitated the use of a correction for the age stratification procedure when report of the research findings was made, in order to permit valid comparison with those findings of other authors.

The numbers were thus corrected. The numbers in the younger age groups were doubled and summed with the numbers in the older age group as shown in Table 20.

TABLE 20

Population and Correction Table for the Age Stratification Sampling Procedure

	Actual number of subjects	Corrected number of subjects	Total estimated number of subjects
Males 65-74	50	100	133
≥75	33	33	
Females 65-74	111	222	328
≥75	106	106	
Males & Females 65-74	161	322	461
≥75	139	139	

The actual numbers of psychiatrically abnormal males and females were corrected separately. The numbers in the younger age groups were doubled and summed with the numbers in the older age groups and percentage prevalence for each diagnostic category was calculated.

Thus the following three Tables (20, 22, 23) show the actual number of cases encountered in the sample, the corrected number, and the resulting estimated percentage prevalence.

Table 20 shows that the actual number of male subjects seen was 83. Of this number, 10 subjects had organic brain syndrome and 14 subjects had functional disorder. In all, 24 were found to have psychiatric disorder. But with the application of the correction procedure 14 of 133 were estimated to be likely to have organic brain syndrome - a prevalence percentage of 10.52, and 23 (17.29%) had

functional disorder, giving a total of 37 (27.8%) of the 133 subjects with some psychiatric abnormality.

TABLE 21

Actual and Corrected* numbers of Male cases showing conspicuous Psychiatric Abnormality

	Actual number of subjects	Corrected number of cases	Prevalence
	83	133	Percentage
Organic Brain Syndrome	10	14	10.52
Functional Disorders	14	23	17.29
All Disorders	24	37	27.81

* Correction for 2 : 1 age stratification sampling procedure.

Similarly in Table 22 the actual number of females seen was 217. Of this number 18 had organic brain syndrome and 29 had functional disorder. In all 47 of the 217 females had psychiatric disorder. The correction procedure corrects these numbers and refers to a population of 328 with 24 female subjects having organic brain syndrome, a prevalence percentage of 7.33%, 45 (13.76%) subjects having functional disorders, and the total number of subjects with psychiatric abnormality being 69 (21.1%).

TABLE 22

Actual and Corrected* numbers of Female cases showing conspicuous Psychiatric Abnormality

	Actual number of subjects	Corrected number of cases	Prevalence
	217	328	Percentage
Organic Brain Syndrome	18	24	7.33
Functional Disorders	29	45	13.76
All Disorders	47	69	21.1

*Correction for 2 : 1 age stratification sampling procedure.

The total sample of males and females is considered in Table 23.

Organic brain syndrome affected 28 of the 300 subjects actually seen. Functional disorders affected 43, which gave a total of 71 psychiatrically abnormal subjects.

With correction these figures expressed as a percentage of a population of 461 are 38 (18.24%), 68 (14.75%) and 106 (22.99%) respectively.

TABLE 23

Actual and Corrected* numbers of Male and Female cases showing Conspicuous Psychiatric Abnormality

	Actual number of subjects	Corrected number of cases	Prevalence
	300	461	Percentage
Organic Brain Syndrome	28	38	8.24
Functional Disorders	43	68	14.75
All Disorders	71	106	22.9

* Correction for 2 : 1 age stratification sampling procedure.

Prevalence rates per cent of cases with psychiatric disorder among subjects living at home are shown on Table 24.

TABLE 24

Prevalence Rates* per cent of Cases with Psychiatric Disorder among Subjects Living at Home

		MALES	FEMALES	TOTAL
1. Organic Brain Syndrome	Mild	6.76)	2.75)	3.9)
	Moderate	3.75)10.5 ± 2.6	3.66)7.33 ± 1.44	3.68)8.24 ±1.28
	Severe	-	0.99	0.65
2. Functional Disorders		17.3 ± 3.27	13.76 ± 1.9	14.75± 1.65
(a) Affective disorders and neurosis				
Anxiety	Mild	0.7		0.21
	Mod/Sev	2.25	0.91	1.3
Depression	Mild	4.51	3.05	3.47
	Mod/Sev	3.75	4.58	4.33
Manic depressive disorder		1.5	0.91	1.08
(b) Paranoid syndrome	Mild	-	0.91	0.65
	Mod/Sev	2.25	0.91	1.08
(c) Other		2.25 ±1.2	2.75 ± 0.9	2.6
Personality disorder				
Mental deficiency				
Eccentricity				
3. ALL DISORDERS		27.8 ±3.88	21.1 ± 2.25	22.99± 1.95

* Corrected for the sample's age stratification procedure.

NB In calculating standard errors of percentages, the formulae $SE = \sqrt{\frac{100pq}{N}}$ was used with the usual connotations where p is the proportion of N psychiatrically ill, and q = (100 - p), and N is the number of 461 subjects as previously calculated.

Organic Brain Syndrome

Twenty-eight of the 300 subjects were found to have some type of organic brain syndrome. Of the men, 4 (8%) of the younger group of 50 subjects aged 65-74 and 6 (18%) of the older group of 33 subjects aged 75 years of age and over exhibited signs consistent with this diagnosis, and of the women, 6 (5.4%) of the 111 younger subjects and 12 (11.3%) of the 106 older female subjects were diagnosed as having organic brain syndrome. So that in both males and females a greater proportion of the elderly group were affected than of the younger group.

The numbers of men and women of both age groups showing the various degrees of organic brain syndrome are shown on Table 25, together with the type of organic brain syndrome diagnosed.

There were 13 subjects in the mild, 12 subjects in the moderate and 3 subjects in the severe categories of organic brain syndrome.

There was an equal prevalence rate (3.69%) for mild and moderate degrees of dementia and only 0.65% were considered to have severe dementia. Within the precise limits of the definition of arterio-sclerotic brain syndrome six such cases were found and senile dementia was diagnosed in 11 subjects.

In all, 11 of the 28 cases of organic brain syndrome showed the presence of other contributory factors whether physical or social. Accordingly these cases were grouped in a category "other" in which dementia was associated with known physical illness and acute or chronic conditions due to organic brain disease other than senile or arterio-sclerotic.

Table 26 shows the same figures, only displayed to show more clearly the prevalence rates per cent of arterio-sclerotic syndrome (1.74%), senile organic brain syndrome (3.3%) and the miscellaneous group of other types of brain syndrome as discussed (3.25%).

TABLE 25

Degree and Type of Organic Brain Syndrome exhibited by subjects Living at Home

	Males (N=83)		Females (N=217)		Total (N=300)		Corrected Prevalence
	65-74	≥75	65-74	≥75	65-74	≥75	Rate per cent
1. Mild Organic Brain Syndrome							
Arteriosclerotic	1	-	1	1	1	2	
Senile	-	2	2	1	2	3	3.69
Other organic conditions	1	3	-	1	1	4	
2. Moderate Organic Brain Syndrome							
Arteriosclerotic	-	-	1	1	1	1	
Senile	-	-	1	3	1	3	3.69
Other organic conditions	2	1	1	2	3	3	
3. Severe Organic Brain Syndrome							
Arteriosclerotic	-	-	-	1	-	1	
Senile	-	-	-	2	-	2	0.65
Other organic conditions	-	-	-	-	-	-	

TABLE 26

Actual Numbers of Subjects with Organic Brain Syndrome among Subjects Living at Home

	Males (N=83)		Females (N=217)		Total (N=300)		Corrected Prevalence Rate per cent
	65-74	⩾75	65-74	⩾75	65-74	⩾75	
(a) Arteriosclerotic							
Mild	1	-	1	1	1	2	
Moderate	-	-	1	1	1	1	1.74
Severe	-	-	-	1	-	1	
(b) Senile							
Mild	-	2	2	1	2	3	
Moderate	-	-	1	3	1	3	3.3
Severe	-	-	-	2	-	2	
(c) Other							
Mild	1	3	-	1	1	4	
Moderate	2	1	1	2	3	3	3.25
Severe	-	-	-	-	-	-	
TOTAL number of cases	4	6	6	12	9	19	8.24 ± 1.28

Functional Disorders

The prevalence rate per cent of 14.75 ± 1.65 was found for all functional disorders. The functional disorder group referred to affective mood disorders, manic depressive psychoses, paranoid syndrome and personality disorders, mental deficiency and eccentricity of life style.

Actual numbers and percentage of subjects found to have these disorders, the type of each disorder and its degree together with the appropriately corrected population number and the corrected prevalence per cent is shown in Table 27.

Of the males, more in the older group were affected (15.1%) than in the younger group (10.8%) and of the females both age groups were similarly affected; 14.4% of the younger age group and 12.2% of the older age group. More men (17.3%) had symptoms of psychiatric disorder than women (13.76%).

Depression of both mild and moderate to severe severity was most commonly diagnosed and accounts for 3.47% and 4.33% of the population.

No attempt was made to sub-divide depression into exogenous or endogenous types because invariably there appeared to be sufficient social or medical reason to induce a depressive reaction in the affected subjects.

Anxiety was less often found than depression in this elderly population and accounted for only 1.51% of the psychiatric disorders.

TABLE 27

Type and Degree of Functional Disorder exhibited by Subjects Living at Home

	MALES (N=83) 65-74 N=50	75 N=33	FEMALES (N=217) 65-74 N=111	75 N=106	TOTAL 65-74 N=161	75 N=139	Corrected (N=461) Pop. numbers	Corrected Prevalence Rate per cent
A. Affective Disorders								
Depression Mild	3	0	3	4				3.47
Mod/Sev	2	1	6	3				4.33
					14	8	36	7.8
Anxiety Mild	0	1	0	0				0.21
Mod/Sev	1	1	1	1				1.3
					2	3	7	1.51
Manic Depressive Psychosis	1	0	1	1	2	1	5	1.08
B. Paranoid Syndrome								
Mild	0	0	1	1				.65
Mod/Sev	1	1	1	0				1.08
					3	2	8	1.73
C. Other								
Personality disorder	0	0	1	1				
Mental deficiency	0	0	1	0				
Eccentricity	1	1	0	1				
Other	0	0	1	1				
					4	4	12	2.6
ALL FUNCTIONAL DISORDERS	9	5	16	13	25	18	68	
Percentage	10.8	15.1	14.4	12.2	15.5	12.9		14.75 ± 1.65

Manic depressive psychosis accounted for 1.73% of the population. Two of the three subjects with the condition were in a recessive stage of the illness and would have been considered normal had it not been for the extensive past history of the disorder which was uncovered by perusal of general practice and hospital records.

Case No. 147 : examined February 1970

Mrs. O'B., aged 72, was a long-widowed Irish lady living alone in a Corporation flat. She was well liked and frequently visited by her family and friends. She had just been discharged from mental hospital. Since the onset of her severe depressive mental symptoms in the 1950's she had been admitted on twelve occasions for electro-convulsive therapy to hospital. General practitioner's notes and hospital records confirmed her account of a life-long twenty-year history of manic depressive psychosis. She engaged in the survey full heartedly and was embullient throughout.

Only one male subject was found to have manic depressive illness and he was in great need of assistance.

Case No. 54 : examined June 1969

Mr. K., aged 66, was very depressed and tearful when interviewed at home. He complained of lack of concentration and inability to cope. He admitted to having attempted suicide several times. Although he was alone at the time of interview, his married sister lived close by and visited him frequently. Mr. K. lived in a comfortable three-apartment flat. His wife died ten years prior to interview and his only child, a daughter, was married and living in Dundee. He was well oriented in time and place and was a person with good memory for recent and remote events. His recall was accurate and he had fair insight into his condition. He was often tearful during the interview, telling of his frequent suicidal attempts and hospital admissions. His first experience of severe depression was in 1933 when, after the death of his father, he had been forced to manage the family butcher's business. This proved to be too much responsibility and after selling it he took a job in a chain store group as a flesher's assistant. He did well but when offered promotion became anxious and then depressed and sought psychiatric treatment after an attempt to commit suicide.

Interview with his general practitioner and examination of the general practitioner's and mental hospital's records showed that Mr. K. had had several such episodes, and in the years 1949 and 1967 had been admitted to mental hospital for E.C.T. which had proved to be successful in altering his depressive state. He had been seen by a number of consultant psychiatrists who had made the diagnosis of manic depressive psychosis.

His state at the time of survey interview was unknown to the general practitioner but once made aware of the situation the family doctor referred him once again for psychiatric treatment. His sister had suspected him to be ill again and was intending contacting the general practitioner but instead had encouraged her brother to take part in the survey in order to facilitate hospital admission.

Other Psychiatric Illness

Paranoid syndrome was found in 1.73% of the total population and included two cases of late paraphrenia, subjects with paranoid states, and those of paranoid personality.

Late onset schizophrenia or a schizophrenia defect state was found in one man (Case No. 280, p.62) and one woman (Case No. 179, p. 63) In neither did there appear to be any previous history of mental disorder and therefore might well be considered to be late paraphrenia which is well described by Post (1965). Janzarik (1957) as quoted by Felix Post describes a typical case of paraphrenia; one of pyknic habitus, who has been capable and involved long after retirement with no volitional changes nor incongruity of affect.

Paranoid states were seen in two other subjects. One, a widow of 20 years (Case No. 92,aged 80) was mildly affected and although co-operative and pleasant in the early stages of the survey she became suspicious and hostile when routine questions were asked about her parents' lives, her education, and when asked the questions on the Memory and Information Test (Appendix 1). No type of reassurance as to either the necessity for such questions in the usual assessment or the absolute confidentiality of this information was acceptable to her and after the completion of the survey she subsequently made slanderous remarks about the interviewer, the survey, the department, etc. to several people in her neighbourhood.

Only one litigious subject was discovered (Case No.183, p. 63).

Of the population 2.6 per cent were found to have one of the final sub-divisions of disorders which consisted of:

(i) one case of an elderly high grade mental defective who lived with her two unmarried middle-aged children;

(ii) three separate cases of eccentric subjects who although difficult to interview were agreeable and co-operative in examination.

Bleuler (1955) describes the eccentric as "the only representative of constitutional aberrations in whom affectivity is apparently not

preponderatingly disturbed". Here they are defined as those individuals whose life-style is in some way in sympathetic discord with the others of their social intellectual group. These people invariably have good intact positive drive mechanisms and exhibit no signs of psychiatric abnormality or distress.

(iii) Two women who gave unusual sexual histories appeared to be otherwise psychiatrically competent so that some difficulty was experienced in their classification. These two subjects are grouped under the category "other".

(iv) Two cases of personality disorders.

Personality disorders are generally acknowledged to be characterised by undue preponderance of certain features in the personality structure which may either present a disability to the person himself or may largely be a problem to others. Two such cases were seen. One case (No. 238, p. 70) was treated by the general practitioner in an excessively authoritarian manner. She maintained the subject in a constant iatrogenic depressive state, whereas the other subject appeared to have been successful in obtaining gratification of her psychological needs over the three years of observation.

Case No. 252 : examined September 1970

Mrs. P., aged 68, was married to a leading Trade Union official. Her recently married 41 year old University graduate daughter had bought a house 200 yards away from her mother's home in case her mother needed her. Mrs. P. was visited daily by this daughter and by her nephew who was the local veterinary surgeon. She also had a married son of 36 years who lived in Aberdeen.

Mrs. P. never smiled. She remained dour, uncooperative and disgruntled throughout the interview. Once when some rapport was established she spoke fearfully of her recent "heart condition" and the altered life she had had to adapt to. She had been especially upset that her daughter, a teacher, had chosen to marry the local ironmonger the previous year, feeling that this was unnecessary since Mrs. P. had given her daughter a good profession. Mrs. P.'s E.C.G. was normal and no other abnormality was detected at clinical examination. She refuted any optimistic diagnosis. The general practitioner described the subject as being a tearful, demanding and aggressive woman.

At reassessment in December 1973, Mrs. P. was slightly more agreeable. Her husband had retired. Her son-in-law had died leaving her daughter his business and wealth. Mrs. P. now looked after the two year old grand-daughter whilst her daughter looked after the ironmonger's business. The changes in her social life have meant that Mrs. P.'s family has returned almost entirely to the home and she contemplates with pleasure the proposed sale of the business and the daughter's return to teaching. The "tired heart" syndrome had been cured for the present without therapy.

Discussion : Organic Brain Syndrome

It has been stated (Pearce 1973) that our knowledge of epidemiology of dementia is incomplete because of the difficulties involved in matching results and that an intelligible comparison between different studies cannot be made without keeping in mind that the criteria may be different. It is essential to state the criteria explicitly. Unfortunately, in general, comparative rates deriving from different surveys are of limited value because of the differing standards of methodology, diagnosis and of sources of information. However, an attempt is made here to assemble those studies which have used similar methods and similar diagnostic criteria.

Numerous epidemiological studies have been made. Table 28 is a summary of the more important studies which have taken place since 1948, and shows the authors' names, the years of publication of the results, the number in the sample studied, the ages of the sampled subjects, and the country of origin, and also an attempt has been made to evaluate the extent of enquiry. The scope and aims of the investigations are indicated by the figures in the last column.

TABLE 28

Studies of psychiatric illness in elderly community residents

Name	Year	No.	Age Group	Country	Type of Investigation
Shelden	1948	470	p.a.*	U.K.	1, 2, 3.
Bremer	1951	119	60+	Norway	1
Hobson and Pemberton	1955	467	p.a.*	U.K.	1, 2.
Essen Moller	1956	443	60+	Sweden	1
Gruenberg	1961	1,592	65+	U.S.A.	1, 3.
Primrose	1962	222	65+	U.K.	1, 3.
Miller	1963	328	p.a.*	U.K.	1, 2, 3.
Neilsen	1963	994	65+	Denmark	1
Kay et al.	1964	309	65+	U.K.	1, 3.
Williamson	1964	200	65+	U.K.	1, 2, 3, 4.
Parsons	1965	271	65+	U.K.	1
Akesson	1969	4,198	60+	Sweden	1
Hagnell	1970	441	65+	Sweden	1
Williams	1972	342	75+	U.K.	1, 2.
Present study	1971	300	65+	U.K.	1, 2, 3, 4.

1 = psychiatric : 2 = physical : 3 = sociological : 4 = dietetic
* = pensionable age : Males 65, Females 60.

The prevalence rate of 8.24% for all types of organic brain syndrome in this study agrees well with those observed by Neilson (1963) in Denmark, who recognised that 6.8% of his sample had organic brain syndrome and by Gruenberg (1961) in the United States of America who found that 6.8% of a community sample of 1,592 elderly people of 65 years of age and over had enough manifest symptoms of ageing to be judged unable to care for themselves or to be a danger to themselves or others.

The rate of 6.7% of Bremer (1951) the Norwegian general practitioner is more difficult to evaluate since the author includes "constitutional and psychogenic psychoses" as well as organic brain syndrome in this percentage. Similar rates to the present author's findings at 9.9% are given by Williams et al. (1972) in a survey of general practice, although the sample population was aged 75 years of age and over.

Perhaps the most satisfactory agreement is to be found with the classic study of Kay et al. (1964) of community residents when it was found that 10% of the sample of elderly people living at home aged 65 years and over exhibited symptoms of organic brain syndrome.

Even studies which rates at first perusal seem unrelated, on closer inspection appear to have some similarity. For example, Akesson's (1969) figure of 0.95 per cent in his carefully collected point prevalence study referred only to subjects who were classified according to a strict modification of the Roth classification of dementias in that only cases who were severely demented (being defined as those who were constantly disorientated as to time and place) were included in the morbidity rates, and so this figure compares well with the rate of 0.65 for those with <u>severe</u> intellectual impairment in the present study.

The results of several other studies do not appear to relate, however, e.g. Sheldon (1948) states that of his sample 14.0 per cent were " those whose faculties are slightly impaired, are forgetful, childish and either difficult or very difficult to live with", and Parsons (1965) found 14 per cent of his sample to be "intellectually impaired" and included those with mild mental deterioration. Neither authors attempted to elucidate the diagnostic criteria used.

In 1956 Essen Moller conducted a survey of an entire Swedish rural population and found 15.8 per cent of the elderly people to have organic brain syndrome - 5 per cent having moderate to severe dementia. Dementia in this context was defined as being a "pathological mental delusional state that most psychiatrists would have attributed to pathological interference".

Discussion : Functional Disorder

Bergmann (1972) comments that "growing old itself has seemed to many people a sufficient cause for depression and fear". "Perhaps this has inhibited the search for neurotic disorder in this period of life". Certainly there seem to be fewer studies which are concerned with the prevalence of neurotic disorders in the elderly, the bulk of the literature being concerned with organic brain syndrome (see Table 29).

Shepherd and Gruenberg (1957) investigated the age specific incidence and prevalence of neurosis using records of hospital admissions and discharges, and "new cases" registered with a Health Insurance plan as a "Service for Psychoneurosis". A rapid decline in prevalence from the age of forty on suggested that neurosis did not exist as a major problem in old age or lessened in severity. However they themselves were sceptical as to these explanations and suggested that elderly patients might complain less or that physicians might be less responsive to neurotic disorders in old people.

Arie (1972) has made the point that "practically all psychiatric disorders which are recognised in younger people occur also in the elderly", and that the myth that "neurosis burns itself out with age" is false. Certainly, surveys which have included in the results of their investigations psychiatric illness other than that of organic brain syndrome, have not suggested a decline of neurotic disorder in old age.

The rate of 14.7 per cent (Table 29) for functional disorders in this study agrees well with the findings of Primrose (1962) and Sheldon (1948) both of whom found 12.6 per cent of their sample to be thus affected.

TABLE 29

The Prevalence of the Main Psychiatric Syndromes of Old Age, according to various authors

Author	Year	Organic Brain Syndrome	Functional Disorder
		Percentages	
Sheldon	1948	14.0	12.6
Bremer	1951	6.7	22.7*
Hobson & Pemberton	1955	4.0	25.0 Males 50.0 Females
Essen Moller	1956	15.8	15.3
Gruenberg	1961	6.8	N.A.**
Primrose	1962	4.7	12.6
Miller	1963	5.4	21.0 Males 53.0 Females
Neilsen	1963	6.8	6.7*
Kay et al	1964	10.0	25.2
Williamson	1964	24.0	19.5
Parsons	1965	4.4	32.0
Akesson	1969	0.95	N.A.**
Hagnell	1970	16.1	N.A.**
Williams	1972	9.9	5.85
Present study	1971	8.24	14.7

* = Includes "constitutional" and "psychogenic" psychoses.
** = Not applicable. Investigation was limited only to prevalence of organic brain syndrome.

Community surveys conducted by Essen Moller (1956) and Neilsen (1963) also confirmed the high prevalence of neurotic disorder in old age, though Scandinavian diagnostic terminology - the classification of Sjobring (1923) was used - which makes direct comparison with other studies difficult.

Some authors prefer higher rates (Table 29) for functional disorder. Miller (1963) in a survey of elderly patients in his rural general practice stated that 21 per cent of men and 53 per cent of women whom he had examined had evidence of functional psychiatric disorder and Hobson and Pemberton (1955) in their survey found 25 per cent of women and 50 per cent of men to be similarly affected, although the latter results are qualified by the authors' admission that difficulty was experienced in evaluating abnormalities of function and that the psychiatric results

of the study were to be considered only tentative. Parsons (1965) in a random sample of 228 elderly persons in Swansea omitted cases of cognitive impairment and found that approximately one third of the sample (32%) were experiencing or had experienced a condition of interest to a psychiatrist, whereas previously Bremer (1951), in a general practice study in Norway, found 22.7 per cent of the elderly to be similarily affected. In the study by Williamson et al. (1964) depressive disorders alone represented 19.5 per cent of the study population.

The diagnostic classification of the neuroses was more detailed in the Newcastle survey of Kay et al. (1964a) than that of general practitioner surveys (Bremer 1951; Primrose 1962; Watts et al. 1964). The main diagnostic groups employed were neurotic depression, anxiety state, hysteria, abnormal personalities and paranoid states. The prevalence of all functional disorders in the 309 Newcastle-upon-Tyne subjects living at home was 30.7%.

The difference in rates for functional disorder between the present study and that of the Newcastle-upon-Tyne study is accounted for by the greater prevalence of affective disorders and neurosis in the Newcastle study. Of their subjects living at home, 26.2 per cent were diagnosed as having minor functional disorder and 5 per cent appeared to have neurotic disorder, which could not be considered a recrudescence or exacerbation of long-standing neurotic traits.

They also failed to encounter florid psychotic state, whether schizophrenic or affective, in the field survey and suggested that cases with severe primary functional disorders are uncommon at this age. "Those which do occur appear promptly to be removed to hospital". These findings are in contrast with the present survey, viz. cases Nos. 54 (p.95) 179 (p.63) 183 (p.63) 280 (p. 62) 292 (p. 68) and 298 (p. 68).

Table [24] shows that for this study depression accounted for 7.8 per cent and anxiety 1.4 per cent respectively and these figures closely relate to the combined percentage of 5.8 given by Williams et al. (1972) for these affective disorders.

There is a need to distinguish between minor depressive fluctuating moods of the cyclothymic personality and the frank depressive illness as well as the normal tension during stress and the unrelenting disabling anxiety state.

It was found that mild forms of disability which rarely present for advice or attention at the survey, much less at the psychiatric clinic, were often seen in this field study. However, because of the number of times the interviewer met these subjects in a variety of situations it was possible to note whether or not the disturbed affective mood was persistent or transient. Fourteen subjects might well have been diagnosed after one encounter or interview as having a mild psychiatric disorder but were not so because a full appreciation of the temporary quality of the initial mood was made possible by the longitudinal nature of the assessment.

The discovery, diagnosis and evaluation of minor mental symptoms requires frequent face to face contact with the subject under study (Hagnell, 1970).

PSYCHOMETRIC TEST PERFORMANCE OF THE ELDERLY AT HOME

As previously described in the Design of Survey the subjects were given three psychometric tests.

1. The Coloured Progressive Matrices A, Ab, B. (R.C.P.M.) Raven 1965.
2. The Mill Hill Vocabulary Scale (Short Version) (M.H.V.S.(SV) Raven 1958.
3. A 35-point Memory and Information Test (M.I.T.) Appendix 1.

The tests were applied to all subjects who were examined in the course of the main survey. The M.H.V.S.(SV) and R.C.P.M. were given at the time when the physical examination, medical, family, and social histories had been completed. The M.I.T. was given by the author during the extensive home interview when optimal rapport was established.

Although physical abnormalities such as visual defects, dysphasia, deafness and various degrees of dementia and psychiatric disorder were encountered, very few subjects showed reluctance to attempt one or other of the above tests. The R.C.P.M. engendered interest and a certain amount of enthusiasm. The M.H.V.S.(SV) was, in general, accepted uncomplainingly but the M.I.T. provoked suspicion, firstly because the subject felt 'on trial' and secondly it was more socially apparent when intellectual deficit was present which created embarrassment in the subject if mildly impaired, invariably because the subject had considerable insight. This test also provoked one paranoid reaction which, although it did not result in the abandonment of the subject's co-operation in the 1969 survey, resulted in the non co-operation of the subject at a later date in the 1972 survey (Case No. 92) p.).

Results

Coloured Progressive Matrices (Raven, 1965)

This test, as has been indicated, was readily accepted and easily explained to the elderly subjects. Two hundred and ninety-two subjects attempted the test.

With reference to Table 30 the mean score of the 50 younger males was 23.38 (SD 6.27) and the mean score of the 33 older male subjects was 22.21 (SD 11.47). Female subjects had lower mean scores - 20.77 (SD 6.55) for the 108 younger females and 19.05 (SD 10.78) for the 101 older females.

TABLE 30

Raven's Coloured Progressive Matrices

		N	Score Means	S.D.
Males	75	50	23.38	6.27
	75+	33	22.21	11.47
Total		83	22.91	8.67
Females	75	108	20.77	6.55
	75+	101	19.05	10.78
Total		209	19.94	8.87
Total population (Males & Females)		292	20.78	8.90

(Means and Standard Deviations of Scores made by male and female subjects living at home)

The mean scores appear to be remarkably uniform, while the standard deviations of the older age groups for both sexes are greater than the standard deviations for the younger age groups. The overall mean score of the total population males and females considered together was 20.78 (SD 8.90).

Mill Hill Vocabulary Scale (Short Version)(Raven, 1958)

Two hundred and ninety-two subjects made an attempt to complete the M.H.V.S.(SV) test. The values obtained for this test expressed in mean scores with their respective standard deviations are shown in Table 31.

TABLE 31

Mill Hill Vocabulary Scale (Short Version)

		N	Score Means	S.D.
Males	75	50	9.96	2.85
	75+	33	9.67	2.89
Total		83	9.84	2.85
Females	75	108	8.48	2.69
	75+	101	9.13	7.22
Total		209	8.79	5.39
Total population (Males & Females)		292	9.09	4.83

(Means and Standard Deviations of Scores made by Male and Female Subjects living at home)

There was no variation of significance in the mean scores which for the 50 younger and 33 older males were 9.96 and 9.67 respectively, and for the 108 younger and 101 older females were 8.48 and 9.13 respectively. The overall mean score of the total population, males and females considered together, was 9.09 (SD 4.83).

It is of interest that the standard deviation of the scores of the older females at 7.22 is much greater than for the younger at 2.69, indicating the absolute variability of the scores is much greater in the older women.

The performance on the R.C.P.M. and the M.H.V.S. (SV) of elderly patients admitted to psychiatric hospitals has been studied (Kendrick and Post, 1967) but these investigations have been concerned with the difference in performance on these and other tests between patients diagnosed as having either organic brain syndrome as the primary diagnosis or as having disorders of affect. Results from this last study and others whose populations are drawn from in-patient hospital wards and admission records are not comparable with the results of the present study for which the population was a randomly selected sample of community residents.

Table 32 shows the recent studies of normal elderly subjects in the community by various authors who have used the R.C.P.M. and the M.H.V.S. (SV).

The mean scores on the R.C.P.M. and the M.H.V.S.(SV) in the present study appear to be, in general, greater than the results of other authors. However, comparison with the mean scores of this study and the work of other authors is somewhat complicated in that as Savage (1972) has observed investigators frequently publish incomplete data, some presenting total scores whilst others present qualitative differences. Complexity also arises in that often male and female combined scores are given instead of the presentation of separate results for males and females. Further, few give adequate age group data; samples are small and the derivation of the sample is incompletely described.

TABLE 32

Community Studies and Investigation of the Normal Elderly by Various Authors

R.C.P.M. and M.H.V.S.(SV)

Author	Year	Measure	N	Sex	Mean Age	Mean Score
Orme	1956	RCPM	32	Not stated	66.8 (SD 3.3)	21.4 (SD 5.6)
	1956	RCPM	19	Not stated	74.5 (SD 2.3)	20.8 (SD 5.9)
Irving	1970	RCPM	40	Not stated	73.9 (SD 5.9)	21.6 (SD 5.5)
Present study	1969-71	RCPM	50	Males	69.3 (SD 2.5)	23.38 (SD 6.27)
			33	Males	78.4 (SD 2.6)	22.21 (SD 11.47)
			108	Females	70.27 (SD 2.6)	20.77 (SD 6.55)
			101	Females	80.3 (SD 3.8)	19.05 (SD 10.78)
Foulds & Raven	1948	MHVS	77	Not stated	50+ (SD Not stated	31 (SD Not stated)
Orme	1956	MHVS	32	Not stated	66.8 (SD 3.3)	44.1 (SD 11.5)
		MHVS	19	Not stated	74.5 (SD 2.3)	46.6 (SD 15.4)
Irving	1970	MHVS	40	Not stated	73.9 (SD 2.3)	49.5 (SD 13.0)
Present study	1969-71	MHVS(SV)	50	Males	69.3 (SD 2.5)	49.8* (9.96 (SD 2.85)
			33	Males	78.4 (SD 2.6)	48.3* (9.67 (SD 2.89)
			108	Females	70.27 (SD 2.6)	42.4* (8.48 (SD 2.69)
			101	Females	80.3 (SD 3.8)	45.6* (9.13 (SD 7.22)

* Corrected scores. For ease of comparison the actual scores on the 17-point MHVS(SV) have been corrected according to the instructions (Raven 1965) i.e. each word in the MHVS(SV) correctly defined is equivalent to a score of five on the whole MHVS.

A diligent search of the literature has failed to produce any study comparable with the present one which has used the R.C.P.M. together with the M.H.V.S.(SV).

Tables 33 and 34 show the means and standard deviations and variances of the male and female subjects distributed by five-year age groups in respect of the R.C.P.M.

TABLE 33

Raven's Coloured Progressive Matrices

Age Group N	65/9 26	70/4 24	75/9 22	80/4 10	85+ 1	Total 83
Score Means	23.42	23.33	22.40	23.00	10.00	22.91
SD	6.85	5.73	13.77	2.82	0.0	8.67
Variance	46.97	32.92	189.68	8.00	0.0	75.24

(Means and Standard Deviations of Scores made by Male Subjects living at home by quinquennial age groups)

In men the score means are remarkably consistent. A single subject aged over 85, although giving a low result, is not relevant. (The individual concerned was diagnosed as having arterio-sclerotic dementia). The greatest absolute variability and variance involved the 75-79 age group.

TABLE 34

Raven's Coloured Progressive Matrices

Age Group N	65/9 51	70/4 57	75/9 50	80/4 33	85+ 18	Total 209
Score Means	21.47	20.15	19.48	16.93	21.72	19.94
SD	5.91	7.07	6.17	6.47	21.87	8.87
Variance	34.93	50.10	38.17	41.93	478.68	78.79

(Means and Standard Deviations of Scores made by Female Subjects living at home by quinquennial age groups)

With women the score means show a downward trend with age from 65 years to 84 years but the 21.72 score mean in the 85+ years age group goes against this 'trend'. This result in the oldest age

group is probably not fortuitous and the absolute variability of 21.87 bears no relationship to the others.

Tables 35 and 36 show the means, standard deviations and variance of the male and female subjects distributed by five-year age groups.

TABLE 35

Mill Hill Vocabulary Scale (Short Version)

Age Group N	65/9 26	70/4 24	75/9 22	80/4 10	85/9 1	Total 83
Score Means	10.00	9.91	9.27	11.10	4.00	9.84
SD	3.13	2.58	2.76	2.37	0.0	2.85
Variance	9.84	6.68	7.63	5.65	0.0	8.15

(Means and Standard Deviations of Scores made by Male Subjects living at home by quinquennial age groups)

There is a suggestion of a slight decrease in male mean scores with age but this decline is stopped by the highest mean score of all groups occuring in the 80-84 age group. The absolute variabilities do not vary materially with age but are all less than the corresponding values for the R.C.P.M. of the same men.

TABLE 36

Mill Hill Vocabulary Scale (Short Version)

Age Group N	65/9 52	70/4 58	75/9 51	80/4 33	85/9 19	90/4 1	Total 214
Score Means	8.67	8.31	8.58	7.97	12.78	6.0	8.79
SD	2.62	2.76	2.72	2.32	15.83	0.0	5.39
Variance	6.89	7.65	7.40	5.40	250.84	0.0	29.09

(Means and Standard Deviations of Scores made by Female Subjects living at home by quinquennial age groups)

The score means of the female subjects show a downward trend with a high value in age group 85-89 years. In this group absolute variability is exceptionally great and bears no relationship to the standard deviations of the other age groups, which indicates greater

distribution of scores and consequently should be interpreted with caution.

To recapitulate with regard to the data available from the R.C.P.M. on Table 33 the means hardly decrease with age but the variance is considerably increased in the 75-79 age group and further in the 80-84 age group the mean has increased and the variance decreased. Of the female group performance on R.C.P.M. (Table 34) the means appear to decrease with age until the 85+ age group when both the mean and the variance increases.

The results from the M.H.V.S.(SV) (Table 35) indicate that the means decrease with age until the 80-84 age group accompanied by a little change in the variance. The female scores (Table 36) show an apparent decrease in means with no change in variance until the 85+ age groups when both mean and variance greatly increase.

Considering mental tests in abstract for a moment, if an ability drops off with age one would naturally expect that samples of several different age groups would show the mean decreasing. If people deteriorated at different rates the variance of the groups would differ. Increase in variance would be explained by the fact that the less able deteriorated more rapidly. Bearing in mind Eisdorfer's (1963) warning that normative data for intelligence collected via the method of cross-sectional sampling may distort the true pattern of age-related changes, the differences between these groups may not be due to ageing but to changes in the population. That is to say death must be intervening and affecting the results.

In the comparison which has already been made between men and women one notices that between the 70-74 and 75-79 age groups the male score means fall off slightly in R.C.P.M. but the variance increases. The R.C.P.M. means recover between the 75-79 and 80-84 age groups but the variance decreases. That is to say the scores are most widely dispersed in the 75-79 age group. This might be due to the lowest scorers being removed by death somewhere around

the late seventies. Thereafter death expectancy is fairly independent of intellectual level. Women are known to be living longer (to within the 85+ age group) but thereafter the lower intellects are beginning to disappear and parallel the trends which have made their appearance with men ten years earlier.

It is an acceptable hypothesis, therefore, that these two aspects, ageing and death, must be combining to produce the score changes.

Thus, in men, R.C.P.M. performance deteriorates fairly uniformly until about 75 when those men least able to think productively die. Thereafter, deterioration continues, the less able deteriorating slightly faster than the more able, and death is removing people in a more random fashion.

With women, deterioration is again slow but less uniform, the less able probably rather more rapidly than the others. The women, however, stay alive almost irrespective of their intellectual level up to about the eighth decade. Then deterioration continues rather more uniformly, overlaid with death removing the least able.

Some sort of neurological model might clarify the position. If one may assume that in ageing the cortical cells are losing their efficiency, and more particularly the interconnections are becoming worn out, the thinking processes required to solve the R.C.P.M. depend on a large number of interplays and interconnections, and therefore one might expect deterioration.

The most able individuals have a large number of methods of solving the problems, e.g. by gestalt formation, pictorial thinking, verbal reasoning, and so on, thus they have more alternatives available as deteriorations in the association fibres sets in. The less able have less versatility and would therefore drop off faster.

Memory and Information Test

All 300 subjects were assessed on this test, even the most severely demented subject encountered in the survey.

TABLE 37

Memory and Information Test (35 points)

		N	Score Means	S.D.
Males	<75	50	31.14	4.18
	≥75	33	31.94	3.26
Females	<75	111	31.50	7.9
	≥75	106	30.43	9.9
Total Population (Males & Females)		300	31.02	7.90

(Means and Standard Deviations of Scores made by Male and Female Subjects living at home)

Table 37 shows the means and standard deviations of the 50 younger and the 33 older male subjects to be 31.14 (SD 4.18) and 31.94 (SD 3.26) respectively, and the scores of the 111 females of the younger age group resulted in a mean of 31.50 (SD 7.9) and of the 106 older female subjects 30.43 (SD 9.9).

The overall mean score of the total population of 300 on this test was 31.02 (SD 7.90).

Tables 38 and 39 show the score means and standard deviations of the male and female subjects living at home distributed by five-year age groups.

~~As already described in the previous section, the age groups for both male and female subjects~~

TABLE 38

Memory and Information Test (35 points)

MALES

N = 83	65/9 26	70/4 24	75/9 22	80/4 10	85+ 1
Score Means	32.69	31.12	30.81	29.20	18.00
SD	2.24	3.99	4.66	4.87	0.0
Variance	5.02	16.94	21.77	23.73	0.0

(Means and Standard Deviations of Scores made by Male Subjects living at home by quinquennial age groups)

TABLE 39

Memory and Information Test (35 points)

FEMALES

N = 217	65/9 53	70/4 58	75/9 51	80/4 34	85/9 20	90 1
Score Means	33.11	30.03	32.84	29.94	25.30	27.00
SD	6.47	8.83	10.04	9.54	8.55	0.0
Variance	41.94	78.03	100.97	91.14	73.16	0.0

(Means and Standard Deviations of Scores made by Female Subjects living at home by quinquennial age groups)

The M.I.T. had been used in the acute assessment wards of the University Department of Geriatric Medicine in order to examine an elderly patient's orientation for time, place, person, and his/her ability to follow simple instructions and so on. Routinely it is given at initial assessment or prior to admission when a patient's mental status is to be established. Full normative data for the elderly was not, however, available for purposes of comparison, although "cut off scores" had been empirically determined to give optimum agreement with psychiatric diagnosis of various degrees of organic brain syndrome (see Appendix 1).

McLennan (1972) used this M.I.T. in conjunction with the R.C.P.M.

on 100 chronically sick young subjects and found that although there was a significant correlation between the results of the two tests (coefficient of correlation 0.64, SE = 0.063) the relationship between the two tests was far from perfect. "Low scores on M.I.T. are associated mainly with low score for R.C.P.M. but a high M.I.T. test score could be associated with a very wide range of values for R.C.P.M." These comments are appropriate to the present study also. Better correlation between the two groups of scores is not to be expected between two tests which measured different aspects of intellectual ability. R.C.P.M. were found to be more discriminant in those subjects at the upper end of the intellectual scale and predictably in a test which had been devised in order to identify those affected by organic brain syndrome, the M.I.T. was of more value in the lower ranges of scores and not only assisted in diagnosis but also in estimation of the degree of brain syndrome when present.

Similar tests have been evaluated (Qureshi and Hodkinson 1974; Varney et al. 1973; Wilson and Brass 1973) for their discriminative value and are thought to have practical clinical value in psychogeriatric diagnosis. The reliability of such tests has also been investigated by Withers and Hinton (1971) who found a consistency in their results that was independent of the tester and that scores, means and significant differences correlated moderately well when patients were re-tested.

It is regrettable that so many such invalidated tests are in use (Gilmore 1973) for this means that comparison with the work of others is difficult. However it is reasonable to continue to experiment with the design of such tests in order to find those that are most acceptable and practicable and might be adopted universally by the various screening and therapeutic agencies dealing with the elderly.

THE FOLLOW-UP SURVEY OF THE ELDERLY AT HOME (1972-1974)

This part of the study consisted of the review of each case record and the re-contact and interview at the home of each of the participants in the original study (1969-1971). The same method of a semi-structured interview was used in this part of the study (Proforma 5). The mean time interval between the first interview of the 1969 survey and the review home visit of the 1972 survey was 3.34 years (minimum time interval being 2.17 years and maximum time interval 4.33 years).

Sixty-five of the 300 subjects had died during the period between the two surveys.

TABLE 40

Follow-up Survey: Male Deaths

Age Group	Total number of subjects	Total number of deaths	%
< 75	50	15	30.00
≥ 75	33	9	27.3
TOTAL	83	24	28.9

Table 40 shows that the deaths had occurred of 15 (30%) of the younger males and 9 (27.3%) of the older males. There is no significant difference between the two age groups in the expected numbers dead at the second interview ($X^2 = 0.04$, d.f. 1, $p < 0.1$).

TABLE 41

Follow-up Survey: Female Deaths

Age Group	Total number of subjects	Total number of deaths	%
< 75	111	17	15.3
≥ 75	106	24	22.6
TOTAL	217	41	18.9

Table 41 shows that 17 (15.3%) of the 111 women under 75 years of age and 24 (22.6%) of the 106 older women had died by the time of the follow-up study. The differences in deaths in the two age groups do not differ significantly ($X^2 = 1.2$ d.f.,1 $p < 0.1$) although the percentage dead in the older age group is somewhat greater than in the younger group.

Social Situation

Changes were noted also with regard to the life-styles and social situations of the surviving 235 subjects.

TABLE 42

Follow-up Survey
Changes in social situation (Males)

Outcome	65-74	%	75+	%	Total	%
No change	27	54.0	17	51.5	44	53.0
In hospital	1	2.0	2	6.1	3	3.6
In 'care'	0	0	1	3.0	1	1.2
Rehoused by Council	3	6.0	0	0	3	3.6
Moved house	3	6.0	1	3.0	4	4.8
Other	1	2.0	3	9.1	4	4.8
Death	15	30.0	9	27.3	24	28.9
TOTAL	50	100.0	33	100.0	83	100.0

Fifty-four per cent of the younger men and 51 per cent of the older men had experienced no change whatsoever in their lives or social situation.

There was little difference in the two age groups between the numbers of those hospitalised and put 'in care'.

The unexpectedly large number of seven male subjects who had moved house was partially due to the Glasgow Corporation policy of housing development in that nearly half of these subjects had been compulsorily rehoused by the Glasgow Corporation because of the inadequate structural condition of their tenement dwellings.

TABLE 43

Follow-up Survey
Changes in social situation (females)

Outcome	65-74	%	75+	%	Total	%
No change	72	64.9	59	55.7	131	60.4
In hospital	3	2.7	6	6.7	9	4.1
In 'care'	1	0.9	5	4.7	6	2.8
Rehoused by Council	6	5.4	1	0.9	7	3.2
Moved house	4	3.6	4	3.8	8	3.7
Other	8	7.2	7	6.6	15	6.9
Death	17	15.3	24	22.6	41	18.9
TOTAL	111	100.0	106	100.0	217	100.0

Sixty-five per cent of the younger women had experienced no change in their lives or social situations and 55.7 per cent of the older female group were similarly placed.

A greater proportion of the older women than the younger women had required hospitalisation and had gone into 'care'.

As with the males, a rather surprising number of 15 (6.9%) of the total group of women had moved house; half of these had been rehoused by the Corporation of Glasgow.

TABLE 44

Follow-up Survey
Availability of subjects for re-interview

	Males		Females		Percentage of original sample	
Reassessed in full	16)	48	65)	133	27.0)	60.3
in part	32)		68)		33.3)	
Deceased	24		41		21.7	
In Institutions	4		15		6.3	
Omitted	2		4		2.0	
Untraceable	2		14		5.3	
Refused	3		10		4.3	
TOTAL	83		217		100.0	

In summary, and with reference to Table 44 which shows the availability of subjects for re-interview, of the original 300 subjects 65 (21.7%) had died, 12 (4%) were in hospital for treatment of acute or chronic disease and 7 (2.3%) had entered hospital or other institution, the most common reasons for this being respectively carcinoma or dementia.

Six (2.0%) were omitted from the study by the author for a variety of reasons and 16 (5.3%) were untraceable and missing. Of the remaining 194 (64.7%) subjects available for interview 13 of them refused to be interviewed. Thus 181 (93%) of those 194 available for interview were seen which is a high completion rate for community studies in the aged (Powers and Bultena, 1972). These 181 re-interviewed subjects co-operated fully with the interviewer.

It has been well documented (Kay et al. 1956) that the diagnosis of organic brain syndrome is one of the most unfavourable prognosticators of early death in an elderly person and it has also been estimated (Kay, 1962) that the mortality rate in demented subjects is at least five times as high as that of the population in general. Bergmann et al. (1972) found in their follow-up study of two samples of elderly community residents (N = 294, 466) in Newcastle at intervals of four years and three years later, respectively, that even minor and apparently benign memory disorders in the elderly were of unfavourable prognosis.

Similar conclusions may be drawn from the results of the present study which are shown on Tables 45 and 46 which show the actual numbers and percentages of the elderly men and women subjects grouped according to their psychiatric diagnosis at the time of the first interview (1969-1971) and the medical or social conditions which prevailed at the time of the follow-up survey (1972-1974) some three years later.

TABLE 45

FOLLOW-UP SURVEY: Outcome after three years controlling for psychiatric classification
MALES (n = 83)

Psychiatric Diagnosis	n	Unchanged <75	Unchanged ≥75	Unchanged %	Dead <75	Dead ≥75	Dead %	In Hospital <75	In Hospital ≥75	In Hospital %	In Care <75	In Care ≥75	In Care %	Rehoused <75	Rehoused ≥75	Rehoused %	Other <75	Other ≥75	Other %	Total %
Organic Brain Syndrome																				
Mild	7	0	1	14.3	2	4	85.7		-			-			-			-		100
Mod/Sev	3	1	0	33.3	1	0	33.3	0	1	33.3		-			-			-		100
Sev			-			-			-			-			-			-		-
Manic Depr. Psychosis	1		-			-			-		1		100.0		-			-		100
Anxiety State Mild	1		1	100.0		-			-			-			-			-		100
Mod/Sev	2	1	0	50.0	0	1	50.0		-			-			-			-		100
Depression Mild	3	3	0	100.0		-			-			-			-			-		100
Mod/Sev	3	-	-		2	1	100.0		-			-			-			-		100
Paranoia Mod/Sev	2		-			-			-			-		1		50.0	1		50.0	100
Eccentric	2	1	1	100.0		-			-			-			-			-		100
TOTAL	24																			
NORMALS	59	21	14	59.3	10	3	22.0	0	1	1.7	0	1	1.7	5	1	10.2	1	2	5.1	100
T O T A L	83																			

TABLE 46

FOLLOW-UP SURVEY: Outcome after three years controlling for psychiatric classification
FEMALES (n = 217)

Psychiatric Diagnosis	n	Unchanged <75	Unchanged ≥75	Unchanged %	Dead <75	Dead ≥75	Dead %	In Hospital <75	In Hospital ≥75	In Hospital %	In Care <75	In Care ≥75	In Care %	Rehoused <75	Rehoused ≥75	Rehoused %	Other <75	Other ≥75	Other %	Total %
Organic Brain Syndrome																				
Mild	6	1	1	33.3	2	1	50.0	0	1	16.7		-			-			-		100
Mod	9	0	2	22.2	2	1	33.3	0	1	11.1	0	2	22.2		-		1	0	11.1	100
Sev	3	0	1	33.3	0	2	66.2		-			-			-			-		100
Manic Depr. Psychosis	2		-			-		1	1	100.0		-			-			-		100
Anxiety Mild	-		-			-			-			-			-			-		-
Mod/Sev	2	1	0	50.0	0	1	50.0		-			-			-			-		100
Depression Mild	7	1	2	42.9	1	1	28.6	0	1	14.3	1	0	14.3		-			-		100
Mod/Sev	9	4	2	66.7	2	1	33.3		-			-			-			-		100
Paranoia Mild	2	1	0	50.0	0	1	50.0		-			-			-			-		100
Mod/Sev	1		-			-			-			-			-			1	100.0	100
Personality Disorder	2	1	0	150.0		-			-			-			-		0	1	50.0	100
Mental Defective	1	1	0	100.0		-			-			-			-			-		100
Eccentric	1		-			-			-			-			-		0	1	100.0	100
Other	2	0	1	50.0		-			-			-			-		1	0	50.0	100
TOTAL	47																			
NORMALS	170	62	50	65.5	10	16	15.2	2	2	2.3	1	3	2.3	9	5	8.2	6	5	6.4	100
T O T A L	217																			

Of the 10 males who were thought to have organic brain syndrome 7 (70%) had died and 1 male subject was in hospital. Whereas, of the 18 women subjects diagnosed as having organic brain syndrome only 8 (44.4%) had died, although 2 (11%) had been taken into psychiatric hospital and 1 other female subject was in a long stay geriatric ward.

The number of subjects in each of the functional disorder groups are in general too few for comparison, the exception being the group of depressed women subjects of which one third had died by the time of the follow-up survey.

Of the three subjects (1 man and 2 women) who had lifelong histories of manic-depressive psychosis all had been admitted to institutions on a permanent basis. In one case, at the specific request of the individual himself.

Kay et al. (1966) have shown that certain medical, social and psychiatric features are significantly correlated with death within four years in elderly subjects.

Because of the extensive nature of the 1969-1971 parent survey and the research data available from it, it was possible to select a number of variables which were both representative of the original survey findings and of special interest to this investigation and consider them in relation to the survival and non-survival of the 300 elderly subjects of the survey.

The following hypothesis was posed: that the subjects who had died during the interim between surveys would in some way be more deprived with regard to their status in the 1969-1971 survey than those subjects who had survived intact the three year period. This part of the study would concern itself with the review of social class, marital status, social habit, psychiatric and physical health, and dietary intake data.

This data was grouped into five main categories.

1. Social: Age, sex, marital status, social class and smoking habits.

2. Psychiatric: Psychiatric diagnosis whether normal, non-functionally or functionally disordered.

3. Psychometric: Short term memory scores, calculation test scores. (The short-term memory and calculation tests were merely integral sections of the Memory and Information Test (Appendix 1).

4. Physical: Arteriosclerotic disease, central nervous systemic disease, Vitamin B12 and/or folate deficiency states. The limitation of mobility and the extent of physical disability. (Mobility and physical disability were rated on an Assessment and Daily Living Scale (Akhtar et al. 1973).

5. Dietetic Intake Status: Assessment record of whether or not the subjects' dietary intakes were adequate according to the stated and recommended levels of FAO/WHO (1973) and DHSS (1969). (For methodology involved McLeod et al. 1974).

These items were suitably coded and input to an IBM 370-158 computer in order to facilitate analysis.

The significance test used for each of the items was the usual chi-square.

The specific items are listed on Table 47.

TABLE 47

Follow-up Study

List of Comparative Characteristics between Survivors and Non-Survivors

Social	Age
	Sex
	Marital State
	Social Class
	Smoking Habits
Psychiatric	Organic Brain Syndrome
	Other Psychiatric Disorders
Psychometric	Short Term Memory Scores
	Calculation Test Scores
Physical	Arteriosclerotic Disease
	Central Nervous Systemic Disease
	Vitamin B12 Deficiency
	Folate Deficiency
	Limitation of Mobility
	Physical Disability
Dietetic Intake Status	Calories
	Protein
	Potassium
	Calcium
	Iron
	Thiamine
	Riboflavine
	Nicotinic Acid
	Vitamin C
	Vitamin D

Results

Age and Sex

TABLE 48

Follow-up Survey

Age and Sex

Comparison betwenn survivors and non-survivors

Significance Test Results		
Age Group	N	
< 75	240	X^2 = 1.003
⩾ 75		d.f. = 1
		Not sig.
Sex		
Males	240	X^2 = 2.685
Females		d.f. = 1
		Not sig.

N is the number of subjects for whom full details were available.

Not sig. - not significant at the 5 per cent significance level.

There was no difference in the proportion of those surviving and those not surviving when allowing for either age (X^2 = 1.003 with 1 d.f. at the 5 per cent significance level) or sex (X^2 = 2.685, d.f. 1 at the 5 per cent significance level).

Marital Status and Social Class

TABLE 49

Follow-up Survey

Marital Status and Social Class
Comparison between survivors and non-survivors

Significance Test Results			
Marital Status		N	
	Married	181	X^2 = 0.01
	Widowed		d.f. = 1
			Not sig.
Social Class			
	Reg.Gen. I & II	240	X^2 = 1.562
	III		d.f. = 2
	IV & V		Not sig.

N is the number of subjects for whom full details were available

Not sig. - not significant at the 5 per cent significance level

Neither differences in marital status nor social class was found to be significantly different with regard to the survival and non-survival of the subjects.

Dietary Intake Adequacy Status

There was no difference in the proportions of those surviving and those not surviving when allowing for the status of adequacy or inadequacy of dietary intakes.

TABLE 50

Follow-up Survey: Nutritional Intake
Comparison between survivors and non-survivors

	Significance Test Results	
Nutritional Intake	N	
Calorie Intake	240	X^2 = 1.246
Adequate		d.f. = 1
Inadequate		Not sig.
Pr. Intake	240	X^2 = 0.394
Adequate		d.f. = 1
Inadequate		Not sig.
Potassium Intake	240	X^2 = 0 26
Adequate		d.f. = 1
Inadequate		Not sig.
Ca. Dietary Intake	240	X^2 = 0.02
Adequate		d.f. = 1
Inadequate		Not sig.
Iron Dietary Intake	240	X^2 = 0.302
Adequate		d.f. = 1
Inadequate		Not sig.
Thiamine Intake	240	X^2 = 0.015
Adequate		d.f. = 1
Inadequate		Not sig.
Riboflavine Intake	240	X^2 = 1.357
Adequate		d.f. = 1
Inadequate		Not sig.
Nicotinic Acid Intake	240	X^2 = 0.026
Adequate		d.f. = 1
Inadequate		Not sig.
Vitamin C Intake	240	X^2 = 0.042
Adequate		d.f. = 1
Inadequate		Not sig.
Vitamin D Intake	240	X^2 = 0.409
Adequate		d.f. = 1
Inadequate		Not sig.
Deficiency States		
Vitamin B12 Deficiency	240	X^2 = 1.767
Not deficient		d.f. = 1
Deficient		Not sig.
Folate Deficiency	240	X^2 = 0.716
Not deficient		d.f. = 1
Deficient		Not sig.

N is the number of subjects for whom full details were available.
Not sig. - not significant at the 5 per cent significance level.
Inadequate - dietary intake below stated and recommended levels of WHO (1973). and DHSS (1969)

Several comments must be made in light of these apparently negative findings. Firstly, as Durnin (1973) states: "the nutrient requirements for man are set out in tables which at present time involve variable amounts of guess work, which means that perhaps the recommended levels of these nutrients tend to be at the least over-cautious, the standards being higher than most other national standards". So, although many of these elderly people appeared to have inadequate nutrient and energy intake it must be realised that most surveys done on even young, healthy adult populations with "ad lib" food access, show similar distribution of "apparent" inadequacies of diet. Perhaps it is not surprising, therefore, that the level of significance for the comparison between survivors and non-survivors with regard to the considered individual nutrients of their diets in this instance supports the contention that the null hypothesis is correct.

Characteristics Association with Non-Survival

All results are significant at 0.05 (or 5%).

TABLE 51

Follow-up Survey

Comparison between survivors and non-survivors

Significance Test Results		
	N	
Smoking Habits	240	
Non-smoker		
Moderate smoker		X^2 = 10.471
1-14 cigarettes/day		d.f. = 2
Heavy smoker		p < 0.005
Mobility	238	
Unlimited		X^2 = 15.163
Limited		d.f. = 2
Severely limited		p < 0.001
Physical Disability	240	
None or Minor		X^2 = 8.752
Major		d.f. =1
		p < 0.005
Presence of Physical Disease		
Presence of Arteriosclerosis	237	X^2 = 14.094
No abnormality		d.f. = 1
Definite abnormality detected		p < 0.001
Presence of C.N.S. Disease	220	X^2 = 8.193
No abnormality		d.f. = 1
Definite abnormality detected		p < 0.005
Presence of Psychiatric Disease	224	
Normal		X^2 = 20.358
Organic Brain Syndrome		d.f. = 1
		p < 0.001
	218	X^2 = 5.312
Normal		d.f. = 1
Other Psychiatric Disease		p < 0.025
Psychometry		
Short Term Memory	240	X^2 = 7.469
Poor		d.f. = 2
Fair		p < 0.025
Good		
Calculation Ability	236	X^2 = 6.461
Poor		d.f. = 2
Fair		p < 0.05
Good		

N is the number of subjects for whom full details were available.

In summary it can be seen from Table 52 that for each of the items the level of significance for the association between the survivors and the non-survivors was less than 0.1 per cent for items 1, 2 and 3, and less than 0.5 per cent for items 4, 5 and 6, and less than 5 per cent for items 7, 8 and 9.

TABLE 52

SUMMARY OF RESULTS SIGNIFICANT AT 0.05 (5%)	
1. Arteriosclerotic Disease	0.001
2. Organic Brain Syndrome	0.001
3. Limitation of Mobility	0.001
4. Central Nervous Systemic Disease	0.005
5. Physical Disability	0.005
6. Smoking Habits	0.005
7. Poor Recent Memory	0.025
8. Other types Psychiatric Disease	0.025
9. Poor Calculation Ability	0.05

When these characteristics associated with non-survival are considered it can be seen that each is in some way associated with arteriosclerotic disease bearing some relationship to either the aetiology, the presence, or the outcome of the disease. The predominance of arteriosclerotic disease in the genesis of organic brain syndrome and central nervous systemic disease has been well documented (Hagnell, 1970) as has the association between cigarette smoking, carcinoma of the bronchus and arteriosclerosis which was shown in the classic paper of Doll and Hill (1954), and more recently by Dyer, Stamler et al., 1975. Physical disability and the limitation of mobility are often further consequences of the disease. Indeed only category 8 of Table 52 appears to escape this obvious relationship.

There are comparatively few studies which consider differences in the life situations between aged subjects interviewed at two points in time and those lost through death.

Of those available the most useful in the consideration of this part of the present study are those of Bultena et al. (1971) at the University of Iowa and the series of papers by Riegel et al. (1967) of Hamburg and Michigan Universities which make detailed examination of the implications of "drop out" in longitudinal samples of subjects over the age of 64 years.

The findings of Kay et al. (1966) in the follow-up of the Newcastle-upon-Tyne random samples of the elderly (Kay et al. 1964) are in accord with the findings of the present study in respect of items 3 (immobility), 7 (poor memory) and 5 (physical disability) (Table 52). The Newcastle-upon-Tyne studies were inter-disciplinary in that data from psychiatric assessment (Kay et al. 1966 and 1970), psychometric test performance (Britton et al. 1967; Hall et al. 1972), and social assessment (Kay and Bergmann, 1966) are considered. Similarly items 2 (organic brain syndrome) and 8 (other psychiatric disorders) are in accord with those of Kay (1962).

The follow-up study (Granick and Patterson, 1971) of Human Ageing Project begun in 1955 in Philadelphia by Dr. James Birren in the United States of America is more comparable to this part of the present study in that data from extensive physical examination was available for consideration on a longitudinal basis. Findings regarding items 1 (arteriosclerotic disease), 4 (central nervous systemic disease) and 6 (smoking) are in accord with those published by these two groups. In none of these studies, however, has cognisance been made of the nutritional status of the elderly subjects and a search of the literature was unable to produce any comparable study in the field of nutrition.

DISCUSSION

Medawar (1955) has stated that "nothing is clearer evidence of the immaturity of gerontological science than the tentative and probationary character of the systems and measurements". If this is the case, then it is necessary in analytical survey research of the elderly to pay particular attention to such concerns as the derivation of the sample, the design and methodology of the study, and equally to state unequivocally the rationale for the use of the observational and measuring instruments. Above all, the concepts, definitions, and descriptions employed must stand up to close intellectual scrutiny. Even if these rigorous conditions are met the information elicited will, in itself, provide only a silhouette of the reality of the elderly person's situation.

When attempts are made to define or assess normality or abnormality in the scientific observation of the elderly in the community, two main problems present themselves.

Firstly, normative data is unavailable on many medical, psychological, behavioural and nutritional variables and secondly mental disorders in the senium cannot be comprehensively classified according to aetiological factors alone. On this last point it would seem that a viable classification must be based upon an appropriate blend of symptoms and causes.

The application of a purely objective selection of relevant criteria for the study of mental health of the elderly living at home, therefore, is likely to prove inadequate, yet a purely subjective approach is equally unacceptable. An alternative approach, the one adopted in the present study, is a holistic one combining both the clinical examination of the elderly person and a series of in-depth semi-structured interviews conducted in the elderly person's own home.

In such an approach the role of the investigator in this particular study was a complex one. On the one hand the investigator's lengthy and close personal knowledge of the area and its inhabitants provides

an understanding of the social milieu of the elderly person. On the other hand, familiarity could lessen the investigator's awareness of salient points in the elderly person's social and mental situation. Nevertheless, on balance, such an approach can yield certain information which may elude the general practitioner and hospital doctor because of the constraints imposed upon them by the nature of their function in the care and management of the elderly person.

Although general practice studies have made a vital contribution to the understanding of old age mental disordors, Kessel (1960) and Kessel and Shepherd (1962) suggested that minor psychiatric illness tends to remain unrecognised by general practitioners and this was confirmed in further investigations by Williamson et al. (1964). Shepherd et al. (1966) pointed out that family doctors were aware of about 50 per cent of the psychiatric disorders in their elderly patients and that very few of the milder cases were receiving any form of treatment or support.

Shepherd and Gruenberg (1957) investigated the age specific incidence and prevalence of neurosis using hospital records and "new cases" registered with Health Insurance plan as a "service for psychoneurosis". They showed a peak of onset in early maturity followed by a rapid decline in prevalence from the forties onward. Their results tend to suggest that neurosis did not exist as a major problem. But they themselves cast doubt on the propositions, for instance, that neurosis may lessen in severity, that patients may complain less, or that physicians may be less responsive to neurotic disorder in old age. Whichever of these explanations is correct, it suggests that the hospital clinic was not the place where old age neurotic disorders could be readily found and the many community studies aimed exclusively at the elderly and often based on personal interviews with them have yielded high estimates of all mental diseases in the senium. There is a wide measure of agreement between different authors, often working in vastly different cultures.

These community investigations suggest that between 20 and 30 per cent of persons over 60 years of age exhibit psychiatric symptoms or

psychological deviations (Kay, 1972) with functional, particularly affective, disorders predominating up to the age of 70 years and thereafter psycho-organic states increasingly amcounting for the rising morbidity.

It is usual for the elderly patient to first come under care, whether psychiatric or geriatric, as a result of an acute social or medical crisis which may have already rendered the situation unfavourable for treatment or rehabilitation.

As Post (1951, 1962a,b., 1965, 1966, 1968) and Slater and Roth (1969) suggested, this means that elderly patients tend to be sent for specialist care only late in their illness, with requests for in-patient care rather than curative treatment which is regrettable since a great deal can be done to treat successfully functional mental illness in the elderly and to alleviate the burden of those suffering from organically based senile disorders, and assist relatives and friends in the support of the ailing aged in the community.

The importance of preventive tactics was recognised as early as 1955 by Anderson and Cowan who observed in a study of 500 old people attending their experimental consultative health centre for older people in Rutherglen, that 25 per cent were in a state of mental dis-ease of whom 48 per cent lived alone. Positive and ultimately successful measures were adopted by this team to improve morale and promote mental health in this community.

The fact that the mental health of the elderly person concerns not only the immediate circle of relations and close acquaintances but also the wider community, has important consequences for our medical and social services. A line of enquiry as a follow-up of the present study may provide some guidance in delineating the conditions under which the slow, subtle change from normality to abnormality takes place.

Adelstein et al. (1968) has commented that "the speed and duration of the process which transforms an individual into a psychiatric patient is partly governed by cummulative pressure being

built up around the individual by others, among whom may be household members, kin, neighbours, colleagues and social agencies". But it also may be argued that this type of social structure with its expectation of the individual as a member of the group also may prevent mental illness. The elderly because of their disengagement from the economically productive community and by dint of age itself are no longer bound in this supportive framework.

Nevertheless Kay, Beamish and Roth (1964b) after an extensive study of individuals with dementia both in and out of hospital suggested that "chronological age is the most important aetiological factor although impoverished diet, sensory impairment and social isolation also probably contribute to the deterioration in some cases". Even if one accepts this view point and, on the basis of the evidence it would be difficult to demur, there is a difficulty as to which factor or combination of factors, other than age, is the crucial determinant in the deterioration of mental health.

Every effort must be made to identify and diagnose those elderly people in need and improve the general quality of life in old age.

There appears to be a considerable period before the "crisis" situation during which the early recognition of symptoms, possibly by suitable screening procedures, might be capable of identifying those among the aged who are most likely to make demands on the Health and Welfare services.

Certain entities are required. The full range of techniques and methodology of clinical psychology must be applied and simplified whenever possible to clear up the differences between the pathological dementing processes and the changes consequent upon normal biological senescence. Efforts must be continued in the exploration of psychological and physical means of alleviating the symptoms of mental disease in the senium. Follow-up studies of samples of men and women are essential to a proper appreciation of age change and the outcome of clinical syndrome group, although such studies present

special problems of subject co-operation which is difficult to secure and maintain and losses of subjects and observers which occur by death and migration.

Further, since much remains to be known about the strategies and non-cognitive factors which may compensate for even marked degrees of cerebral damage, attempts should be made to understand how some elderly individuals manage to function in a well adjusted fashion within the community while their performances on clinical and psychological measures suggest a marked degree of cognitive impairment.

At present the greater burden of the responsibility for the care of the elderly falls on their families where these exist but this responsibility is tending to shift from the family to the State and voluntary agencies as a result not only of increased demographic changes in mobility in the economically active portion of the population who would in the usual circumstances provide this support, but also in the reorganisation of attitudes in patterns of caring among all classes and age groups in the community. This trend means that a new response to the preventative and curative problems of the mental health of the elderly is required.

A highly relevant suggestion is made by Bergman (1971) when he states that "the psychiatrist and the geriatrician will have to move away from his beds wherever they are located and interest himself in the problems of the family doctor, the general physician, and the surgeon, a corollary to this being that the future geriatrician will no longer be content to be described as a physician concerned with the diseases of the elderly but will attempt, as some do already, to consider also all the types of problems which affect elderly people outside hospital." The trend should now be towards a total community based health care system of which the hospital becomes but one component.

What are the alternatives to hospital care?

Already various schemes are being tried out or have been proposed.

Conditions vary greatly from one region to another and as suggested by Grad and Sainsbury (1965) operational research both on a regional basis and on a limited scale is needed to assess the merits and demerits of various programmes, and assess feasibility of such programmes in terms of cost and manpower and the effects they have on the quality of life of the old people themselves and on their families.

It may be necessary for the non-physician or non-psychiatrist, in the form of a health nurse or other trained person, to concern themselves responsibly with the early detection of illnesses since the very great bulk of elderly patients do not seek medical or physical advice.

Perhaps social casework support of vulnerable families may in future be a further means of preventing or delaying the admission of patients with organic brain syndrome to institutional care. Goldfarb (1968) has presented a scheme to help nursing attendants and other members of care giving agencies to understand the apparently inexplicable behavioural disturbances of the elderly but little has been done in this country to institute and evaluate a systematic attempt in this direction.

The converse of such policies of deliberately involving and actively assisting the family in caring for their eldorly is that the eventual transfer to hospital or other accommodation may be attended by greater risks, i.e. the rapid deterioration in old people following psychiatric admissions is well known (MacMillan and Shaw, 1966). However this is to anticipate the policy issue of the appropriate balance between community and institutional care.

Whatever the ultimate decision is to be it must be made in the awareness of all the available relevant information on the status and needs of the elderly in the community but it must be said, in conclusion, that the practice of geriatric medicine, although resting on increasing scientific and systematic knowledge, both biomedical and social, must also be based,as it always has been, on the interpretive skills of the medical practitioner and para-medical staff. In short, geriatric medicine is both an art and a science.

CONCLUSIONS

SAMPLE

1. The Executive Council lists of the names and addresses of elderly persons are frequently not up to date because of the difficulties involved in the adjustment of these lists with regard to the following items.
   (a) Notification of death.
   (b) Change of address.
   This makes the lists not wholly suitable for selecting representative samples of elderly people for survey research purposes.

2. There appears to be some variation in the way the medical records of some elderly people are updated in general practice.

3. The relationships between general practitioners and their elderly patients are good; most elderly persons interviewed perceived their general practitioner more as a family friend than just another professional person.

4. There was no significant difference between the younger elderly age group (65-74) and the older elderly age group ($\geqslant$75) with regard to their refusal to co-operate in the survey.

5. Significantly more women than men refused to participate in the survey.

6. The choice of postal districts as sampling frames for the study of the elderly living at home made it difficult to contrast findings with other official data.

METHODS

7. A criterion for the amount of intellectual deterioration is necessary to ascertain the degree of dementia before the frequencies in different populations can be compared.

MATERIALS

8. Self-report inventories for personality assessment require some adaptation in their wording for the elderly in order to avoid ambiguity in interpretation and to obtain an accurate account of the performance of the elderly on this type of test.

PREVALENCE RATES

9. One in five elderly persons was found to exhibit conspicuous psychiatric morbidity.

10. There was an equal prevalence rate for mild and moderate degree of organic brain syndrome which accounted for less than 10 per cent of the population.

11. Less than 1 per cent of the elderly population living at home showed signs of severe organic brain syndrome.

12. About one in seven of the elderly people living at home showed features of functional psychiatric disorder.

PSYCHOMETRIC TEST ADMINISTRATION

13. The elderly subjects co-operated well in this part of the survey when care was taken to establish good rapport before testing.

RAVEN'S COLOURED PROGRESSIVE MATRICES

14. Raven's Coloured Progressive Matrices were well received by the elderly subjects and there was no difficulty in obtaining full and sensible co-operation on this test, even in those subjects who were found to have mild or moderate but not severe organic brain syndrome.

15. The mean score on R.C.P.M. of the younger males was 23.38 (SD 6.27) and of the older males the mean score was 22.2 (SD 11.47).
The mean score on R.C.P.M. of the younger females was 20.77 (SD 6.55) and of the older females the mean score was 19.05 (SD 10.78).
The mean score of the total sample on R.C.P.M. was 20.78 (SD 8.90).

16. The means, significant differences and variance of scores on R.C.P.M. made by males distributed by five-year age groups show that there is little alteration in the means but that the variance increases in the 75-79 age group.

17. The means, significant differences and variance of scores on R.C.P.M. made by females distributed by five-year age groups show a little decrease over the age groups until the 85+ age group when both the mean and the variance increase.

MILL HILL VOCABULARY SCALE (SHORT VERSION)

18. This test was less well accepted than the R.C.P.M.

19. The mean score on M.H.V.S.(SV) of the younger males was 9.96 (SD 2.85) and of the older males the mean score was 9.67 (SD 2.89).
The mean score on M.H.V.S.(SV) of the younger females was 8.48 (SD 2.69) and of the older females the mean score was 9.13 (SD 7.22).
The mean score of the total sample on M.H.V.S.(SV) was 9.09 (SD 4.83).

20. The means, significant differences and variance scores on M.H.V.S.(SV) made by males distributed by five-year age groups show that there is a little decrease in these scores until the 80-84 age group in which there is a higher mean score than any of the younger groups.
The means, significant differences and variance of scores made on M.H.V.S.(SV) by females distributed by five-year age groups show that there is a little decrease in means until the 85-89 age group when the means, significant differences and variance increase greatly.

21. An attempt has been made to compare the results of other studies in which the R.C.P.M. and M.H.V.S.(SV) have been used with the results from the present study. Accurate comparison was impossible

due to the insufficiency of detail given by the authors of other studies and the inadequacy of the presentation of their results.

MEMORY AND INFORMATION TEST

22. Some hostility was encountered when this test was applied since a deficit in memory recall was obvious which caused anxiety in certain subjects when their attempts to compensate were frustrated by the deficit itself.

23. The mean score on the M.I.T. of the younger males was 31.14 (SD 4.18) and of the older males the mean score was 31.94 (SD 3.26).
The mean score on the M.I.T. of the younger females was 31.50 (SD 7.9) and of the older females 30.43 (SD 9.9).
The overall mean score of the total sample was 31.02 (SD 7.90).

24. The means, significant differences and variance of scores made by the subjects distributed by five-year age groups and sex show that there is a decrease in performance scores across the age groups in both male and female subjects with the exception of the 75-79 group of females when there is an increase in mean, significant difference and variance of those scores.

THE FOLLOW-UP SURVEY OF THE ELDERLY AT HOME (1972-1974)

25. Deaths: It was found that 30 per cent of the 50 younger male subjects and 27.3 per cent of the 33 older male subjects had died over the period of three years. It was also found that 15.3 per cent of the 111 younger female subjects and 22.6 per cent of the 106 older female subjects had died over the period of three years.

26. Change in state: Fifty-four per cent of the younger males and 51 per cent of the older male subjects had not experienced any change whatsoever in their lives or social situation. Sixty-five per cent of the younger female subjects and 55.7 per cent of the older female subjects had not experienced any change whatsoever in their lives or social situation.

27. Co-operation: Of the original sample of 300, 194 (64.7%) were available for re-interview and examination but 13 refused to co-operate. Thus 181 (93%) of those 194 subjects from the original sample were re-interviewed.

28. There was no difference in the proportion of those subjects surviving and those subjects not surviving after three years when allowing for age, sex, marital status, social class, the presence of inadequacies in dietary intake of calories, protein, potassium, calcium, iron, thiamine, riboflavine, nicotinic acid, vitamin C, vitamin D, vitamin B12 and folate deficiency.

29. There was a significant difference in the proportions of those subjects surviving and those subjects not surviving after three years who were found to have been smokers, have limitation of mobility and/or physical disability, to have shown physical signs or had symptoms of arteriosclerosis, central nervous systemic disease or psychiatric disorder, or had low scores on the short term memory and calculation items of the M.I.T.

30. The common factor in these characteristics which were found to be significant with regard to non-survival after three years appeared to be arteriosclerotic disease.

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Degree of Dementia	Scores
Severe	0 - 7
Severe/Moderate	8 - 17
Moderate/Mild	18 - 25
Mild	26 - 31
Normal	32 - 35

APPENDIX 1

Memory and Information Test

Preamble : I am going to give you a name and address.
Later I will ask you to repeat them to me.
James Anderson,
4 Kings Road,
Perth.

	Questions	Possible Score	Actual Score
1	Serial 7's (100-93-86-79-72)		
2	1d in 1/-		
3	3d in 1/-		
4	3d in 3/9		
5	What day of the week is it today?		
6	What day of the month is it?		
7	What month is it?		
8	What season is it?		
9	What year is it?		
10	What age are you? (allow 1 year error)		
11	What year were you born?		
12	In what month is your birthday?		
13	What date is your birthday?		
14	What is the name of this district?		
15	What is the name of the next street?		
16	Where did you see me last?		
17	What sort of work do I do here?		
18	What did you have for breakfast this morning?		
19	Where were you born?		
20	What school did you attend?		
21	What was your teacher's name?		
22	Who is on the British throne?		
23	Who was on the throne before her?		
24	What is the name of the present Prime Minister?		
25	Who was the Prime Minister before him?		
26	What were the dates (years) of the First World War? Start? ..... Finish?.....		
27	What were the dates (years) of the Second World War? Start? ..... Finish?		
28	How long have you been at your present address?		
29	Can you remember the name and address I gave you at the beginning?		
30	Can you remember my name?		
31	Can you remember Sister's name?		

Subject's verbatim reply to Question 29 :

Possible Score : 35
Actual Score :

APPENDIX 2

The doctor as 'Doctor' and the doctor as 'Research Interviewer': Some problems in the doctor/patient relationship.

It is usual in medical practice that the patient approaches or calls upon the doctor to seek professional assistance and to co-operate with the doctor in order to recover from the presenting physical or psychological disorder. Out of this situation develops the 'normative principles of consistency' from which may be derived some regularity of the role expectations arising out of the therapeutic situation between doctor and patient.

This principle, however, can be disturbed in the interviewer/interviewee relationship in survey research where the interviewer himself is a doctor. How does the subject (in this study an elderly person often living alone) react to a comparatively emotionally uninvolved stranger who on the one hand engages the subject in a series of lengthy discussions focussed on the elderly person's social and mental state, culminating in a physical examination in the clinical situation, and on the other hand by possessing that medical expertise which might alleviate symptoms or solve pressing social or medical problems being experienced by the interviewee and uncovered in the course of the examination.

Although this study was essentially concerned with the collection of data, it was noted even in the very early stages how much comfort could be given to the elderly by even an unknown person expressing some interest. Within the limits of the parent survey there was no direct remit to alleviate any distress or difficulty in any of the studied parameters but because of the degree of emergent involvement it was an impossibility to avoid this medico-social responsibility. Each general practitioner received a full but abbreviated report of the survey findings, and suggestions as to management. Direct contact was made to the department of social work, home helps, hospital out-patient clinical departments, house factors, council offices, and voluntary services. Suggestions made by the survey team were well

received by the general practitioners and other agencies and the subjects themselves were appreciative.

The point to be made here is that no enquiry of this nature in the community should be conducted without the careful consideration that these enquiries will raise the expectations for help of these elderly subjects who participate in such an enquiry. An attempt should be made to provide some service to deal with this eventuality in the early planning stages of any such project.

This need not be an expensive feature of the project if appropriate lines of communication and management for the alleviation of the human problems discovered are made by utilising existing services in the area and that communication between the survey team and those services should be as efficient as that considered appropriate between the team and laboratory for the management and analysis of biochemical, haematological and radiological research data.

APPENDIX 3

ATTITUDES OF THE ELDERLY TO MARRIAGE

In the course of this survey it was found to be feasible to ask of the elderly participants sets of questions pertaining to their marriages and sexual lives.

The questions (Proforma 2) were in three groups. The first group was concerned with the subjects' appraisal of their marriages. The second group was concerned with their sleeping arrangements, and the third with sexual practices.

It was decided to omit the unmarried and the widowed in the parent survey from the survey of marital attitudes and 89 of the 300 subjects were found to be listed as being currently married. However, when the survey commenced it was decided not to continue with this line of questioning in 23 cases (Table 1).

TABLE 1

Reasons for discontinuing marital inventory

	Number of cases
Physical ill health	3
Mental ill health	8
Paranoid reactions	3
Marital difficulties	4
Embarrassment	5
	23

As can be seen this line of questioning was discontinued in three cases where gross incapacitating ill health was present. These were due to recent stroke, incontinence and recent prostatectomy. In eight other marriages either the subject or the subject's spouse was psychiatrically abnormal, the most common diagnosis being that of dementia. Three subjects reacted adversely to this line of questioning. One subject had been consistently

paranoid throughout the entire survey, one female subject became aggressive when the subject of marriage was introduced, and it was found at a later visit following the death of her husband that she had been distressed at the time of survey and embittered by her partner's chronic alcoholism. Yet another subject, following the usual straightforward medical history taking and the social assessment at the first interview, produced at the second interview the front page of a national daily newspaper of wide circulation bearing a report concerning confidential information which had been gathered from a Family Planning Clinic in London and sent cross-country to a computer terminal in Birmingham, which thus constituted in the opinion of both the popular press and the subject a breach of professional secrecy. It was considered that it was advisable to omit this subject.

Two subjects were found to be living apart from their spouses but were not divorced or legally separated. This had not been discovered at previous interviews. Two further subjects had unconsummated marriages. A further five subjects became rather embarrassed and to avoid the possible distress, for after all these people were not volunteering primarily for a survey of their sexual habits, the structured part of the interview was discarded.

This section of the survey was only presented to the subjects when as complete a rapport as possible had been established between the survey doctor and the subject. Usually the investigation, both structured and unstructured components, took place within the framework of the psychiatric assessment and at that part of the examination which was set in the clinic.

Complete answers to the structured part of the interview were obtained from 66 individuals. Table 2 shows the age and sex of these subjects.

TABLE 2

Age and Sex of Subjects who completed "marital attitudes" inventory

Age Group (years)	Females	Males
65 - 69	12	12
70 - 74	7	10
75 - 79	9	11
80 - 84	2	3
TOTAL	30	36

Forty-one of the subjects were in the younger age group, that is aged 74 and below and 25 were in the older age group aged 75 and above. There were 30 women and 36 men. There are more men than women because men in this age group are more likely to have living spouses than are women. Information was obtained, therefore, on some 130 marriages, not 132 as might be supposed, since on two occasions both partners of two marriages were interviewed.

Appraisal of Marriage

Subjects were asked to indicate which term of qualification best described their feelings towards their marriages.

Q1. Do you feel you gain any comfort from your relationship with your husband or wife?

Q2. Has your marriage been satisfactory?

The majority of these people found that they gained considerable comfort from their marital state and also in reply to the second question the majority considered their marriage to have been successful (Table 3).

TABLE 3

Table of qualified replies to questions 1 and 2 of the marital attitudes inventory

Subjects	Answer
Question 1	
46	a lot
17 (11 females + 6 males)	some
3 (2 females + 1 male)	none
Question 2	
60	yes
3 (1 female + 2 males)	doubts
3 (females)	no

Sleeping arrangements. The questions asked were as follows.

Q3. Do you sleep in the same room as your husband or wife?

Q4. Do you sleep in a single or double bed?

TABLE 4

Sleeping arrangements of the group

Subjects	Answer
Question 3	
51	same room
3 (males)	separate room always
12 (8 females + 4 males)	separate room later life
Question 4	
47	double bed
2 (males)	single bed always
17 (10 females + 7 males)	single bed later life

Table 4 shows the results from the second group of questions concerning sleeping arrangements. The majority slept in the same room and only three men slept in separate rooms always. Twelve subjects slept in separate rooms in later life. Forty-seven out of 66 subjects slept in double beds, two men slept in single beds always, and 17 (10 women and 7 men) slept in single beds in later life. One man, that is the man who appears to be absent from category 2 in the second question in this table stated that both he and his wife had always slept in separate double beds throughout their entire married lives. The majority of people, therefore, slept in the same room in a double bed though there was a tendency to adopt a single bed in later life which appeared not to be incompatible with a happy marriage.

These two introductory groups of questions lead to the third group of questions on sexual habits and practices (Table 5).

Sexual intercourse.

Q5. Are you still intimate with your husband/wife?

Q6. How often are you intimate with your husband/wife now?

TABLE 5

Desire for intercourse and its frequency

Subjects	Answer
Question 5	
16 (3 females + 13 males)	yes/needed
11 (8 females + 3 males)	yes/not needed
32 (18 females + 14 males)	no/not needed
7 (1 female + 6 males)	no/needed
Question 6	
9 (2 females + 7 males)	not applicable
2 (female)	> weekly/weekly/monthly
17 (8 females + 9 males)	monthly/ > 6/12
38 (19 females + 19 males)	< 6/12

Sixteen of the 66 replied that they were still intimate and needed this side of marriage. Eleven said they were still intimate but that this part of their relationship was not needed. Thirty-two were not intimate and did not require to be intimate, and seven (predominantly male) were not intimate but desired to be.

Thirty-nine out of the 66 stated that they were no longer sexually intimate and although 27 stated that they were still intimate, further inspection of the data showed that 19 of the 36 men and 4 of the 30 women stated that sexual intercourse still gratified a psychological need, and these numbers differ highly significantly ($X^2 = 10.98$, d.f. = 1, $p < 0.01$), indicating that far more men and less women than expected find in older years a persisting need for sexual relationships which, however, may not be engaged in as frequently as in youth.

Question 6 which was concerned with the frequency of intercourse elicited the following replies. In nine cases the question was non-applicable. Two (1 + 1 + 0) had frequent intercourse and 17 (6 + 9 + 2) had intercourse at six-month or less than six-month intervals. The

obvious discrepancy in the data here - a total of 39 replying in the negative to question 5 and only nine subjects selecting reply 'not applicable' from the possible alternatives in reply to question 6 - may be due to the fact that many considered that being intimate less often than once every six months was equivalent to not being intimate at all.

Q7. How does this compare with when you were younger?

Q8. For how long would you be comfortable without intimacy with your husband/wife?

The majority in reply to question 7 said "much less often" (Table 6). Question 8 attempted to assess the need for intimacy. Eight men said that they would not give an opinion because it no longer mattered to them. Two subjects said between a week and a month, and nine (predominantly male) said between one and six months. Forty-seven subjects (predominantly male) said "six months or longer".

TABLE 6

Subjects' appraisal of sex behaviour pattern changes since youth and estimate of "comfort interval"

Subjects	Answer
Question 7	
2 (1 female + 1 male)	same
11 (10 females + 1 male)	less often
53 (19 females + 34 males)	much less often
Question 8	
8 (males)	no opinion
2 (1 female + 1 male)	>week/week/>month
9 (8 females + 1 male)	month/ > 6 months
47 (19 females + 28 males)	6 months/longer

Lastly, the subjects were asked to rate their own health. Sixty-three of the 66 rated their health as being good to fair and only three (two women and one man) considered themselves to be in ill health.

In summary, the majority of these subjects found comfort in a satisfactory marriage. The majority slept in the same room and bed, although there was some tendency to adopt separate rooms and separate beds in later life. Thirty-nine out of the 66 stated that they were no longer sexually intimate, and although 27 stated that they were still intimate, 11 participated only in order to gratify needs of their spouses. The majority(38) were intimate less often than once every six months. Two had weekly intercourse and 17 had intercourse at least every six months. In nine cases as previously explained, the question was inapplicable. The vast majority also agreed that the frequency of intercourse lessened with age and had reduced need for intercourse with only nine requiring intimacy more frequently than at intervals of one month. Sixty-three out of 66 considered themselves in good/fair health, and only three thought themselves unwell.

DISCUSSION

There is little in the British literature regarding what is normal sexual response in the elderly, and although there are review articles (Amulree 1954; Post 1967) on the subject there is little with which to compare the present study. In the United States of America, however, considerable work has been done although in the two classical North American studies in sexology, those of Kinsey et al., (1948 & 1953) and Masters and Johnston (1966) one finds the elderly are poorly represented, with <0.3 per cent of the males in the Kinsey research sample being over 65 years of age and the investigation of women's sexual lives in Kinsey's later study the research sample was limited in this age group to 0.5% and only 0.1%, i.e. six women were currently married.

In 1926, Pearl interviewed (by postal questionnaire) 257 post-prostatectomy males and found that 49 per cent of males aged 60-69 years stated that they had intercourse at least once a week and also

of the males aged 70-79 years 13 per cent had intercourse weekly. Both results seem rather optimistic in comparison to the 3 per cent of the present study.

Surveys of this kind tend to uncover sexual problems and repeatedly these questions evoked the airing of many life-long dissatisfactions with the sexual side of marriage, although it must be stated that these dissatisfactions did not appear to influence the individual's response as to whether or not they had found marriage as a whole a satisfactory and spiritually comforting convention. Many other questions developed from those posed, and the amount of data received is enormous. This paper, however, is restricted to reporting what appeared to be normal behaviour in normal healthy subjects on the basis of a structured interview and questionnaire.

Each individual had a personal array of sexual capacities but the general trends with ageing are those of reduced incentive, lessened abilities and fewer opportunities with reasonable acceptance of the senescent situation, although these attitudes and performances must be considered with regard to psycho-social conditioning and the customs of the geographical area.

The identification of average patterns of sexual abilities as part of the full psychological and physiological changes with age is necessary if understanding and observation about sexual drives, capacities and expressions in the elderly are to be made and understood.

UNIVERSITY OF GLASGOW

DEPARTMENT OF GERIATRIC MEDICINE

THE ELDERLY AT HOME

Name: Serial Number:

Address:

Date of Birth: Age: Sex:

Date of Interview:

General Practitioner:

1969 - 1970 - 1971

MEDICAL INFORMATION

Surname _____ Name _____

Age | | | Date of Birth | | | | | | |

Previous Hospital Admissions

Date	Hospital	Address at time	Reason	Case No.	Notes seen

Notes from G.P. records at Surgery premises

Hospital Case Sheet Notes

Sample extract from 50-page proforma

Section A	PHYSICAL HEALTH AT PRESENT	
Drugs and Medicine	Laxatives	0. Not known 1. Never 2. Occasionally 3. Regularly
	Analgesics	0. Not known 1. Never 2. Occasionally 3. Regularly
	Hypnotics	0. Not known 1. Never 2. Occasionally 3. Regularly
	Other	0. Not known 1. Never 2. Occasionally 3. Regularly

General Practice Records

Additional Comments

Systematic Clinical History-taking

PHYSICAL

			Details
1.	Drugs	0. Not known 1. None 2. Unprescribed 3. Prescribed 4. Both	
2.	Major diagnosis No.1.	0. None 1. General 2. Skin 3. G.I. 4. G.U. 5. C.V.S. 6. R.S. 7. C.N.S. 8. Locomotor 9. Combination	
	Major diagnosis No.2.	0. None 1. General 2. Skin 3. G.I. 4. G.U. 5. C.V.S. 6. R.S. 7. C.N.S. 8. Locomotor 9. Combination	
3.	Disability No.1.	0. Not known 1. None 2. Minor 3. Major	
	Disability No.2.	0. Not known 1. None 2. Minor 3. Major	
4.	Vision	0. Not known 1. None 2. Minor disability 3. Major disability	

5. Hearing

0. Not known
1. Not deaf
2. Minor deafness
3. Severe deafness
4. Total deafness

Details

6. Blood levels

	Values		
	~~Xxx~~	~~Xx~~	~~XxX.~~
Cholesterol			
Na.			
K+			
Ca+			
Hb.			
	Yes	No	N.K.
Deficient in Folate			
Deficient in B12			

7. Evidence of Central Nervous System Disease

0. None
1. Parkinsonism
2. Disseminated Sclerosis
3. Cerebro-vascular accident
4. Extensor plantars
5. Other abnormalities
6. Combination

Details

8. Evidence of Arterio Sclerotic Disease

0. None
1. Hypertensive heart disease
2. Ischaemic heart disease
3. Peripheral vascular disease
4. Claudication
5. Combination
6. Other

Details

Systolic B.P. | | | |

Diastolic B.P. | | | |

UNIVERSITY OF GLASGOW

DEPARTMENT OF GERIATRIC MEDICINE

THE ELDERLY AT HOME

Name: Serial Number:

Address:

Date of Birth: Age: Sex:

Date of Interview:

General Practitioner:

1969 - 1970 - 1971

MILL HILL VOCABULARY SCORE

(Abbreviated Version)

1. Cruel _____
2. Near _____
3. View _____
4. Shrivel _____
5. Liberty _____
6. Mingle _____
7. Elevate _____
8. Verify _____
9. Bombastic _____
10. Virile _____
11. Perpetrate _____
12. Construe _____
13. Criterion _____
14. Temerity _____
15. Specious _____
16. Recondite _____
17. Adumbrate _____

SCORE

[ ]

RAVEN'S COLOURED PROGRESSIVE MATRICES

A		Ab		B	
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	

Score

MEMORY AND INFORMATION TEST

Preamble : I am going to give you a name and address. Later I will ask you to repeat them to me.

James Anderson, 9 Kings Road, Perth.

	QUESTIONS	SCORE
1.	Serial 7's (100-93-86-79-72)	
2.	1d. in 1/-	
3.	3d. in 1/-	
4.	3d. in 3/9	
5.	What day of the week is it today?	
6.	What day of the month is it?	
7.	What month is it?	
8.	What season is it?	
9.	What year is it?	
10.	What age are you? (allow 1 year error)	
11.	What year were you born?	
12.	In what month is your birthday?	
13.	What date is your birthday?	
14.	What is the name of this district?	
15.	What is the name of the next street?	
16.	Where did you see me last?	
17.	What sort of work do I do here?	
18.	What did you have for breakfast this morning?	
19.	Where were you born?	
20.	What school did you attend?	
21.	What was your teacher's name?	
22.	Who is on the British throne?	
23.	Who was on the throne before her?	
24.	What is the name of the present prime minister?	
25.	Who was the prime minister before him?	
26.	What were the dates (years) of the First World War? Start ? _____ Finish? _____	
27.	What were the dates (years) of the Second World War? Start ? _____ Finish? _____	
28.	How long have you been at your present address?	
29.	Can you remember the name and address I gave you at the beginning?	
30.	Can you remember my name?	
31.	Can you remember Sister's name?	
	Total XQ Test Score:	

MAUDSLEY PERSONALITY INVENTORY

(Abbreviated Version)

		YES	NO
1.	Are you happiest when you get involved in some project that calls for rapid action?		
2.	Do you sometimes feel happy, sometimes depressed, without any apparent reason?		
3.	Does your mind often wander while you are trying to concentrate?		
4.	Do you usually take the initiative in making new friends?		
5.	Are you inclined to be quick and sure in your actions?		
6.	Are you frequently "lost in thought" even when supposed to be taking part in a conversation?		
7.	Are you sometimes bubbling over with energy and sometimes very sluggish?		
8.	Would you rate yourself as a lively individual?		
9.	Would you be very unhappy if you were prevented from making numerous social contacts?		
10.	Are you inclined to be moody?		
11.	Do you have frequent ups and downs in mood, either with or without apparent cause?		
12.	Do you prefer action to planning for action?		

MAUDSLEY PERSONALITY INVENTORY (ABBREVIATED VERSION)

Simplified Version

		YES	NO
1.	Do you like doing things where you have to act quickly?		
2.	Do you sometimes feel happy, sometimes depressed, without any apparent reason?		
3.	Does your mind often wander while you are trying to concentrate?		
4.	When you make new friends do you usually make the first move?		
5.	Are you inclined to be quick and sure in your actions?		
6.	Are you often lost in thought?		
7.	Are you sometimes bubbling over with energy and sometimes very sluggish?		
8.	Are you a lively person?		
9.	Would you be very unhappy if you were prevented from seeing and talking to a lot of people?		
10.	Do you sometimes sulk?		
11.	Does your mood often go up and down, either with or without reason?		
12.	Do you prefer doing something, rather than thinking about how to do it?		

PSYCHOLOGY	ATTITUDES
1. Do you feel you are a happy person or would you say you are very happy, unhappy, or very unhappy? If <u>unhappy</u>, why do you feel that way?	0. Not known 1. No opinion 2. Very happy 3. Happy 4. Unhappy 5. Very unhappy
2. Do you have any troubles at present? <u>Details</u>	
3. Do you ever feel lonely occasionally, often, or all the time? If <u>lonely</u>, why do you feel that way?	0. Not known 1. No opinion 2. Never 3. Occasionally 4. Often 5. All the time
4. How do you get on with your family and friends? (a) Spouse (b) Offspring (c) Siblings (d) Parents if/when alive (e) Friends (f) Neighbours <u>Details</u>	
5. Is your family a comfort to you now that you are <u>older</u>? If <u>no</u>, why do you feel this is so?	0. Not known 1. Not applicable 2. No opinion 3. No, too distant 4. No, no contact 5. No, other reason 6. Some 7. A lot

	PSYCHOLOGY	ATTITUDES
6.	Are your other relatives a comfort to you now that you are older? If no, why do you feel this is so?	0. Not known 1. Not applicable 2. No opinion 3. No, too distant 4. No, no contact 5. No, other reason 6. Some 7. A lot
	For Married or Previously Married People	
7.	(a) Has (was) your marriage been satisfactory? (b) What difficulties have there been (were there)?	0. Not known 1. Not applicable 2. No opinion 3. Satisfactory 4. Doubts 5. Unsatisfactory
8.	Do you feel you gain any comfort from your relationship with your husband/wife? Would you say none, some, or a lot?	0. Not known 1. No opinion 2. None 3. Some 4. A lot 5. Not applicable
9.	Do you sleep in the same room as your husband/wife? If no, how long have you slept in separate rooms? If same room :	0. Not known 1. Not applicable 2. Same room 3. Separate rooms always 4. Separate rooms later life
10.	Do you sleep in a single or a double bed?	0. Not known 1. Not applicable 2. Double 3. Single always 4. Single in later life
11.	(a) Are you still intimate with your husband/wife? (b) Do you feel you still need this part of your relationship yourself?	0. Not known 1. Not applicable 2. No opinion 3. Yes/not needed 4. Yes/needed 5. No/not needed 6. No/needed

PSYCHOLOGY	ATTITUDES
12. If yes to Q.11, how often are you intimate with your husband/wife now?	0. Not known 1. Not applicable 2. No opinion 3. More than weekly 4. Weekly 5. More than monthly 6. Monthly 7. More than every six months 8. Every six months 9. Less often
13. How does this compare with when you were younger?	0. Not known 1. Not applicable 2. No opinion 3. More often 4. Same 5. Less often 6. Much less often
14. Can you tell me for how long you would be comfortable without being intimate with your husband/wife?	0. Not known 1. Not applicable 2. No opinion 3. Less than a week 4. Week 5. Less than a month 6. Month 7. Less than six months 8. Six months 9. Longer
15. How would you rate your physical health? Good, fair, poor, or very poor?	0. Not known 1. No opinion 2. Good 3. Fair 4. Poor 5. Very poor

PSYCHOLOGY	PSYCHIATRIC QUESTIONNAIRE		
		YES	NO
1.	Are there times when you feel anxious without knowing the reason?		
2.	Are you afraid of being in a wide open space or in an enclosed space?		
3.	Have you any difficulty in getting off to sleep (without sleeping pills)?		
4.	Have you lost interest in things?		
5.	Have you found it difficult to concentrate recently?		
6.	Are you more absent-minded recently than you used to be?		
7.	Are you slower recently in doing things?		
8.	Are people talking about you and criticizing you through no fault of your own?		
9.	Are there people who are trying to harm you through no fault of your own?		
10.	Are you distressed by silly, pointless thoughts that keep coming into your mind against your will?		
11.	Are you unnecessarily careful in doing simple things like folding up clothes, reading notices, and so on?		
12.	Do you feel you have to check things again and again - like turning off taps or lights, shutting windows at night, and so on, although you know there is really no need to?		
13.	Do you ever hear voices without knowing where they come from?		
14.	Are you troubled by waking in the early hours and being unable to get off to sleep again (if you don't have sleeping pills)?		
15.	Are you ever so low in spirits that you just sit for hours on end?		
16.	Do you ever go to bed feeling you wouldn't care if you never woke up?		

RELEVANT PSYCHIATRIC HISTORY

UNIVERSITY OF GLASGOW

DEPARTMENT OF GERIATRIC MEDICINE

THE ELDERLY AT HOME

Name: Serial Number:

Address:

Date of Birth: Age: Sex:

Date of Interview:

General Practitioner:

1969 - 1970 - 1971

Serial No. | | | | | Date of Birth | | | | | | |

Age | | | Date of Interview | | | | | | |

G.P. | | | Sex | |

Surname _____ Forenames _____

Section A — GENERAL INFORMATION

Civil State (Past and Present)

Additional Comments

0. Not known
1. Single
2. First marriage
3. Subsequent marriage
4. Widowed
5. Divorced
6. Separated
7. Common Law
8. Other

Age of Spouse | |

Section B — EDUCATION/EMPLOYMENT/RETIREMENT

1. At what school(s) were you educated?

Additional Comments

0. Not known
1. Less than primary
2. Primary only
3. Secondary/Junior
4. Secondary/Senior
5. Technical College Diploma
6. Technical College No Diploma
7. University/Degree
8. University/No Degree
9. Other

2. Have you ever served in the Forces?

0. Not known
1. No
2. Yes

Additional Comments

3. Main Occupation _____

Registrar General Classification _____

Name of Job	Years	Training	Reason for leaving	Reasons for Unemployment if ≥2/12

4. Occupation of spouse _____

Registrar General Classification _____

5a. Are you employed at present? _____

5b. Are you retired? _____ Date of retiral _____

5c. What is the reason for your unemployment/retiral? _____

_____

5d. Is your spouse employed at present? _____

5e. Is your spouse retired? _____ Date of retiral _____

5f. What is the reason for your spouse's unemployment/retiral?

_____

6a. Did you see much of your workmates socially? _____

6b. Have you seen much of your workmates since ceasing to work? _____

Section C — RELIGION

1. What religion are you?

Additional Comments

0. Not known
1. Refuses to divulge
2. None
3. Church of Scotland
4. Other Protestant
5. Free Church
6. Roman Catholic
7. Jewish
8. Other

2. How would you describe your religious beliefs?

Additional Comments

0. Not known
1. None
2. Agnostic
3. Atheist
4. Belief in God but not Christian
5. Christian but not organised religion
6. Orthodox Christian
7. Other organised religion

3. Do you believe there is a life after death?

Additional Comments

0. Not known
1. No opinion
2. Yes
3. No
4. Uncertain

4. Do you fear your own death?

Additional Comments

0. Not known
1. Unequivocal No
2. Uncertain
3. Yes

Section D FAMILY HISTORY

1. Number of Siblings

Alive ☐☐ Dead ☐☐ Don't know ☐☐

2. Subject's position in the family ☐☐

3. For each sibling

Name	Living	Age	Civil and Marital Status	No. of Children	Occupation or Occ. of Spouse	Place of* Residence	Significant Medical or Psychiatric History

* Code according to :

0. Not known
1. Same house
2. Within 5 minutes walk
3. Within one mile
4. Same area (day visit feasible)
5. Rest of Scotland
6. United Kingdom
7. Overseas
8. Not applicable

4. Number of children

Alive ☐☐ Dead ☐☐ Don't know ☐☐

5. For each child

Name	Living	Age	Marital Status	No. of Children	Occupation or Occ. of Spouse	Place of* Residence	Significant Medical or Psychiatric History

* Code according to :

0. Not known
1. Same house
2. Within 5 minutes walk
3. Within one mile
4. Same area (day visit feasible)
5. Rest of Scotland
6. United Kingdom
7. Overseas
8. Not applicable

6. For each of subject's parents

FATHER

Name	Living	Age	Occupation	Place of* Residence	Cause of Death	Relevant Medical or Psychiatric History

MOTHER

* Code according to:

0. Not known
1. Same house
2. Within 5 minutes walk
3. Within one mile
4. Same area (day visit feasible)
5. Rest of Scotland
6. United Kingdom
7. Overseas
8. Not applicable

7. In the case of married subjects

Is your husband/wife in good health?

If not, to what degree is he/she disabled?

0. Not known
1. Not applicable
2. Good health
3. Minimal disablement/ no special care needed
4. Disabled/needs minimal help
5. Needs help with daily living
6. Needs help with personal care
7. Needs nursing

Section E — HOUSEHOLD

---

1. Number of occupants

Age less than 5 years ☐
5 - 15 years ☐
15 - 20 years ☐
21 and over ☐
Total ☐☐

No. of generations ☐

No. of relatives ☐☐

No. of non-relatives ☐☐

2. If living in relative's home state which relative.

3. Who is usually in the house during the day other than yourself?

Additional Comments

4. If the subject lives alone

How long have you been living alone?

5. How frequent are you in contact with friends/relatives?

	Telephone	Letter	Paying Visits	Receiving Visits
Daily				
Weekly				
Monthly				
Longer				

6a. What extra help do you receive?

6b. Why do you need this help?

Additional Comments

0. Not known
1. Not applicable
2. None
3. Spouse
4. Relative in household
5. Relative outside home
6. Friend in household
7. Friend outside household
8. Home help
9. District Nurse
10. Other

Section F — HOUSING

---

1. Type of building

Description and general state

Additional Comments

0. Not known
1. Old sandstone
2. 4-in-a-block flat
3. Pre-war rough cast
4. Post war rough cast
5. Detached house
6. Semi-detached house
7. New flat (3)
8. New flat (3)
9. Other

2. No. of floors ☐ No. of floors up ☐ No. of apts. ☐

3. Method of occupation

0. Not known
1. Owner/spouse of owner
2. Corporation tenant
3. Other tenant
4. Relative of Corporation tenant
5. Relative of owner
6. Lodger
7. Other

4. Length of occupancy ☐☐

5. Do you have access to a telephone?

0. Not known
1. No
2. Yes/own phone
3. Yes/shared phone
4. Yes/neighbours
5. Not applicable

Section G — INCOME

1. What is your total income per week? [| | |]

2. Sources of income

Does the bulk of your income come from :

2a. Government Pension
0. Not known
1. Yes
2. No

2b. Social Security Benefits
0. Not known
1. Yes
2. No

2c. Relatives
0. Not known
1. Regular
2. Occasional
3. No

2d. Other
Detail
0. Not known
1. No
2. Employment pension
3. Disability pension
4. Charity
5. Other

Section H — HOBBIES

1. What hobbies do you have?

Comments

2. What other ways do you pass your time?

Comments

Section I — HABITS

1. Do you smoke?
0. Not known
1. Yes
2. No
3. Not at present

If a smoker, how much?

(1 oz. pipe = 28 cigs. = 28gms/day)
1. <5 gms.
2. 5 - 14 gms.
3. 15 - 24 gms.
4. 25 gms. +

PROFORMA 4
SUMMARY OF NUTRITIONAL INFORMATION

UNIVERSITY OF GLASGOW

DEPARTMENT OF GERIATRIC MEDICINE

THE ELDERLY AT HOME

Name: Serial Number:

Address:

Date of Birth: Age: Sex:

Date of Interview:

General Practitioner:

1969 - 1970 - 1971

1. State of nutrition

0. Not known
1. Adequate
2. Borderline
3. Inadequate overall
4. Inadequate protein
5. Inadequate vitamin
6. Inadequate mineral
7. Inadequate other
8. Therapeutic diet
9. Combination

2. Number of hot meals per week ☐☐

3. Alcohol intake

0. Not known
1. Non-drinker
2. Occasional
3. Regular
4. Heavy
5. Alcoholic
6. Ex-heavy drinker

4. Dietetic intake for specific nutrients

	Adequate	Under Recommended	Understated	Other	Not known
Cals.					
Pr/K					
Fe					
Ca++					
K+					
Vit. D					
Vit. C					
Thiamine					
Riboflavine					
Nicotinic Acid					

UNIVERSITY OF GLASGOW

DEPARTMENT OF GERIATRIC MEDICINE

THE ELDERLY AT HOME

Name: Serial Number:

Address:

Date of Birth: Age: Sex:

Date of present interview:

Date of previous interview:

Initial diagnostic category:

Present diagnostic category:

Interview Interval in Months

1972 - 1973 - 1974

MILL HILL VOCABULARY SCORE

1. Cruel _____
2. Near _____
3. View _____
4. Shrivel _____
5. Liberty _____
6. Mingle _____
7. Elevate _____
8. Verify _____
9. Bombastic _____
10. Virile _____
11. Perpetrate _____
12. Construe _____
13. Criterion _____
14. Temerity _____
15. Specious _____
16. Recondite _____
17. Adumbrate _____

RAVEN'S COLOURED PROGRESSIVE MATRICES

A		Ab		B	
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	

PAST

1972/73

MEMORY AND INFORMATION TEST

Preamble : I am going to give you a name and address. Later I will ask you to repeat them to me.

William Morrison, 7 Queen Street, Inverness.

	QUESTIONS	SCORE
1.	Serial 7's (100-93-86-79-72)	
2.	1d. in 1/-	
3.	3d. in 1/-	
4.	3d. in 3/9	
5.	What day of the week is it today?	
6.	What day of the month is it?	
7.	What month is it?	
8.	What season is it?	
9.	What year is it?	
10.	What age are you? (allow 1 year error)	
11.	What year were you born?	
12.	In what month is your birthday?	
13.	What date is your birthday?	
14.	What is the name of this district?	
15.	What is the name of the next street?	
16.	Where did you see me last?	
17.	What sort of work do I do here?	
18.	What did you have for breakfast this morning?	
19.	Where were you born?	
20.	What school did you attend?	
21.	What was your teacher's name?	
22.	Who is on the British throne?	
23.	Who was on the throne before her?	
24.	What is the name of the present prime minister?	
25.	Who was the prime minister before him?	
26.	What were the dates (years) of the First World War? Start? _____ Finish? _____	
27.	What were the dates (years) of the Second World War? Start? _____ Finish? _____	
28.	How long have you been at your present address?	
29.	Can you remember the name and address I gave you at the beginning?	
30.	Can you remember my name?	
31.	Can you remember Sister's name?	
	Total XX Test Score :	

MODIFIED MAUDSLEY PERSONALITY INVENTORY (SHORT VERSION)

		PRESENT		PAST	
		YES	NO	YES	NO
1.	Do you like doing things where you have to act quickly?				
2.	Do you sometimes feel happy, sometimes depressed, without any apparent reason?				
3.	Does your mind often wander while you are trying to concentrate?				
4.	When you make new friends do you usually make the first move?				
5.	Are you quick and sure in your actions?				
6.	Are you often lost in thought?				
7.	Are you sometimes bubbling over with energy and sometimes very sluggish?				
8.	Are you a lively person?				
9.	Would you be very unhappy if you were prevented from seeing and talking to a lot of people?				
10.	Do you sometimes sulk?				
11.	Does your mood often go up and down, either with or without reason?				
12.	Do you prefer doing something, rather than thinking about how to do it?				

LIE SCALE

THE EYSENCK-WITHERS PERSONALITY INVENTORY

		YES	NO
1.	As a child did you always do as you were told immediately and without grumbling?		
2.	Do you sometimes get cross?		
3.	Are there people you definitely do not like?		
4.	Do you sometimes boast a little?		
5.	Do you sometimes put off until tomorrow what you ought to do today?		
6.	Have you sometimes told lies in your life?		
7.	Are all your habits good ones?		
8.	Do you sometimes talk about things you know nothing about?		
9.	Have you ever been late for an appointment or work?		
10.	If you say you will do something, do you always keep your promise?		
11.	Now and then do you lose your temper and get angry?		
12.	Do you sometimes have thoughts you would not like others to know about?		

DEPRESSION INVENTORY

Preamble : Do you consider that any of these statements describes the way you feel?

		YES
1.	I enjoy my food as much as ever.	
2.	I feel I won't get over my troubles.	
3.	I don't get satisfaction out of anything any more.	
4.	I often feel lonely.	
5.	I have lost interest in things.	
6.	As I look back on life all I can see are a lot of failures.	
7.	I feel bad or unworthy practically all the time.	
8.	I am sometimes so low in spirits that I just sit for hours on end.	
9.	I often go to bed feeling I wouldn't care if I never woke up in the morning.	
10.	I feel I deserve to be punished.	
11.	I feel I'd be better off dead.	

Change in Circumstances :

Physical Health :

Mental Health :

Social :

Other :