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AUTHOR Kraenzel, Carl F.; Macdonald, Frances H.
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ABSTRACT

In order to obtain information about the nature and extent of mental illness in a sparsely populated area, the National Institute of Mental Health and the Montana Agricultural Experiement Station made a study of patients who had been discharged from a Montana state hospital for the mentally ill from January 1, 1963 to July 1, 1965. Only patients from 18 sparsely populated eastern Montana counties who had been returned to those counties for at least 30 days of residence were included in the sample. Research definitions and procedures were modified since interviewing was not all first-hand but entailed some "recall" on the part of the patient. A suitable correspondent or the patient himself was available to provide information on each of the 113 people included in the study. The study revealed such factors as deficits of services in sparsely populated areas, a strikingly imbalanced sex ratio (i.e. many more adult males than females), low educational level, and low income level. (LS)

Characteristics of Discharged Mental Patients in Rural 18-County Sparsely Populated Eastern Montana*

Carl F. Kraenzel, Ph.D.
&
Frances H. Macdonald**

Introduction

The majority of studies of mental illness have been made in urban areas, and describe its characteristics from that standpoint. This study is intended to describe some aspects of mental illness in sparsely populated areas, including in the more rural setting of the nation. The original intent was to make the equivalent of a "Midtown Manhattan" study1/ in the sparsely populated area. This would have meant obtaining information about the total of mental illness extent, including those cared for in public and private hospitals and clinics, and those suffering from mental illness symptoms, but not receiving care, either in hospitals or in clinics.

The Midtown Manhattan study indicated that a symptom formation survey of a house-to-house canvass in the middle of downtown Manhattan showed the following results:

a) Proportion of populated well in the sense that people exhibited no symptoms 18.5%
b) Proportion of population with mild symptoms 36.3%
c) Proportion of population with moderate symptoms 21.8%
d) Proportion of population with marked and severe symptoms, and including incapacity 23.4%

These figures for Midtown Manhattan for a sample of people 20 through 59 years of age, would indicate that mental illness in the urban area is very prevalent.2/ Is the prevalence rate as high in a sparsely populated area. or even higher? Only a Midtown Manhattan type of study would produce data to make a comparison.

This study of Mental Patients in the sparsely populated area shows an extensive out migration of patients following hospitalization compared with urban areas. There must be acceptance of the fact that services are so inadequate in the sparsely populated area that people move elsewhere to obtain services. There is also the exodus of some who had been mentally ill in order to get away from the stigma attached to mental illness, or those who left, after being ill, to obtain employment opportunities more conducive to rehabilitation or remaining rehabilitated. These are all facts best described as "social costs of space," a significant concept developed in connection with this study, and to be treated later.

The NIMH rejected an application for a Midtown Manhattan type of study by the sponsor on the ground that the area did not have the psychiatric staff competence to study the non-institutional and the non-treatment population to determine the extent of total mental illness prevalence. There was even some question of whether the extent of mental illness patients receiving private hospital and clinic or out-patient treatment could be determined because of the so-called stigma aspects, and the non-sophisticated attitude of professional and lay people in the area. These aspects represent further facets of what the writers call "the social cost of space"—i.e. those

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** Respectively, Prof. of Rural Sociology, and Research Associate, Montana State University, Bozeman.
1/ Srole, Leo, et al, **Mental Health in the Metropolis: the Midtown Manhattan Study,** Vol. 1, McGraw-Hill, 1962, and the companion volume (II) entitled, **Life Stress and Mental Health,** by Langner, Thomas S. and Michael, Stanley T., Free Press, 1963.

2/ There is much disagreement concerning the meaning of incidence and prevalence of mental illness. The incidence figure is generally used when the count is in terms of admissions over a longer period of time, such as a year, not counting those admitted previously. The prevalence rate is a count of patients receiving treatment on any one day, as a proportion of the total population.

conditions that would likely defer treatment, and even intensify the need and cost of treatment at a later date, because of the absence or the inadequate nature of treatment programs and facilities, and inappropriate attitudes for dealing with mental illness. Again this will be treated in detail in another place.

In order to overcome all these problems of competence and definition, and to obtain some information about the nature and extent of mental illness in a sparsely populated situation, and the possible components of such mental illness, the NIMH and the sponsors agreed to make a study of those patients who had been in the Montana state hospital for the mentally ill from sparsely populated eastern Montana counties, and who had been returned to those counties for a period of at least 30 days of residence.

Patients not included for detailed study were the aged (i.e. those 65 years of age and over upon discharge), the Indian population, and persons who had organic damage to the brain. By limiting the study to those having been legally hospitalized, there would be no difficulty about definition of who was included in the study, and for what reason. Appendix A gives further information concerning the definition of inclusion in the study.

A second objective was to include enough geographic area so as to have at least 100 cases for the study. This test made evident the fact of the social cost of space in the sparsely populated area. To obtain about 100 cases for a two year study period, and to have a correspondent for each of the cases studied[3]/ it was necessary to encompass an 18-county area, the equivalent of 45,479 square miles, about the size of Pennsylvania, or Louisiana, or nearly all of New York. The total population, in 1960, numbered 90,205 for a density of 1.9 persons per square mile—13 percent of Montana's population and about one-third of the geographic area of the state. It is apparent that the geographic space was great, and the cost of getting around was expensive. But this is only part of the story. In order to get a mere 100 cases for the study, another adjustment had to be made.

The adjustment was this. The time of study had to be extended both backward and foreward to include a two and one half year period, i.e. from January 1, 1963 to July 1, 1965. Again the fact of the social cost of space became significant. To get a reasonable volume of cases, it was necessary to considerably modify research definitions and procedures, even to the point of relaxing the rules of interview from "all first hand" to some "recall" on the part of the patient. Fortunately this did not, in the last analysis, change the results or data of the study. However, this fact of sparsity of cases, and necessary modification in scope of area included (enlargement) and extension of time, represents a cost that can only be defined as a social cost of space, and it is the kind of social cost of space that confronts any program of service in the area, be it in health, in education, in welfare matters, in religion, in family activity, or in income production for individuals or families.

Among the several purposes of the study, aside from determining an incidence or prevalence rate for sparsely populated places compared with densely populated places, was the identification and description of the paths to and from treatment facilities for residents of sparsely populated places; the community tenure of patients; and the nature and degree of instrumental performance in success (or failure) of community tenure for patients over a two-year period under conditions of sparsity, and the impact of migration on rehabilitation of the mentally ill.

This tract will concern itself with only a portion of the data involved in this study of mental illness in sparsely populated areas. It will concern itself with the total patient count in the state hospital from the area of study, an approximation of an incidence count, and a comparison of this with characteristics of the 18-county population, the state population, the national population, and the population of certain select states. The analysis of patient composition and characteristics for the sparsely populated area will be revealed in other publications.

The study of mental patients in the sparsely populated areas of Montana is, with modification, somewhat representative of most of the ten Great Plains states, especially the sparsely populated areas. This would include, in addition to Montana the Great Plains parts of the following states—Wyoming, Colorado, New Mexico, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas.

Number and Sex of Discharged Patients

The 18-county area of study included Big Horn, Carbon, Carter, Custer, Dawson, Fallon, Garfield, Golden Valley, McCone, Musselshell, Petroleum, Powder River, Prairie, Richland, Rosebud, Treasure, Wheatland, and Wibaux counties. Table 1 gives data on the number of patient discharges to these counties between January 1, 1963 and July 1, 1965. A total of 319 persons, admitted to the state hospital from these counties at some time, were returned during the two and one-half year period. Over half, or 59.8 percent, of these patients were males.

Nearly half, or 43.3 percent, of the cases (138 out of 319) were excluded from the study because they were 65 years of age or older, because they were Indians, or because they had brain damage. Also, in

3/ A correspondent was defined as a spouse or a next related relative or friend who could give intimate information about the patient.

NOTE: Further aspects of this study will be covered in succeeding Bulletins 646 and 647.

this group are included deaths, deportations, and transfers. Only 113 of the 319, or 35.4 percent, qualified for the study because they were available for contact for two years and more following discharge, and had a correspondent. As many as 68 out of 319, or 21.3 percent, were not included for detailed study because no correspondent was available, or because only a correspondent was available on the ground that the patient himself had moved away.

The males exceeded the females in significant proportions in the exclusion group, and in the unmatched group. Males, once dislocated by mental illness in the sparsely populated area, apparently have a more difficult time in maintaining tenure in their community.

In the case of the matched group, the males only slightly out-numbered the females. In part this is the result of the fact that these patients had correspondents, and in many cases this was a spouse. Most importantly, as later data will indicate, the matched cases were also the less mobile cases, while the unmatched cases were more mobile. It was more often the males that were unmatched who were also mobile. The matched cases had household situations that made it possible for them to be less mobile. All other things being equal these would come closer to the sex ratio situation typical of the population.

Differentials between the Patients and Patient Households and the Resident Populations

Tables 2 through 14 compare the state population of Montana and the 18-county population with the patient household population and the patient population for certain characteristics.[4]/ The following are some of the significant results:

(1) The patient households, both matched and unmatched, and the patients themselves are somewhat older, measured by median age, than is the 18-county total population, or the State population (Table 2). For patients this is especially the case. This last might be expected—mental illness treatment in a state institution especially, involves a greater proportion of older people. But it is interesting that the median age for the mentally ill patient households is also older than for the normal households in the 18-county area and in the state. Apparently the risk of mental illness is associated with older age, especially for clientel of the state hospital.

(2) The dependency ratio is higher for the 18-county area than for the state, when those under 19 are taken as a ratio of those 19 to 65. It is also higher than for the state in the case of those 65 and older, as a ratio of those 19 to 65. This makes the total dependency ratio significantly higher for the 18-county area. For the Matched patient households, and especially for the Unmatched patient households the dependency ratio is strikingly lower than for the two normal populations above. Apparently mental illness, for those using the state hospital, is significantly associated with households that are completed or contracting as far as having children is concerned, compared with the parent population. However, there were many households that had children, including very young children, who also had a patient in the state mental hospital, but these latter were under represented in the institutional population. (3) The 18-county population (table 3) has more males in the total population (a sex ratio of 108.0, see table 4) than the total state population (103.9). This is especially so for the urban population which shows a sex ratio of 106.4 for the 18-county area, and 97.4 for the total state population. For the rural population, the 18-county area shows a slightly lower sex ratio, namely 109.0, compared with 110.8 for the state, indicative of the exodus of females from rural areas. The rural-farm residents for the two populations have a more nearly similar sex ratio, namely 116.1 and 118.0 respectively.

It is in the rural-non-farm category that another significant difference appears, there being a sex ratio of 103.9 in the 18-county area compared with 106.9 in the total state population. This sex ratio imbalance in the urban and in the rural non-farm populations is a significant factor in the community setting situation for mental illness in the sparsely populated area. It means an exodus of females, and a relative piling up of males, both agricultural and non-agricultural workers and unemployables, in the rural-non-farm towns. Coupled with lack of family life, the absence of recreation, and the associated social anomae conditions that arise, this represents a significant risk and exposure of males to behavior situations that send them to the state hospital. The case history evidence obtained through this study clearly supports this community hazard situation.

This is statistically demonstrated by the very high sex ratio for patients in the Unmatched P patient households (204.2) and also for Unmatched P patients (333.3) in the rural-non-farm residence category. These are also the patients who were not included in the patient-correspondent study group, either because they moved away or because they did not have the stabilizing

4/ These data for tables 2 through 6, were first reported in a progress report No. 12, dated December 31, 1967 for the project.

influence of a "significant other" to serve as a correspondent.

For the patients in the rural-farm residence category, the sex ratio is also very high for the Unmatched P patients, and so also for the total rural category compared with the parent population. In this case even the Unmatched P households had a high sex ratio (196.9). For the urban Unmatched P patients the sex ratio was lower then for any other residence category, but still high, namely 142.9. The sex ratio for the urban was low for the Unmatched P households, namely 96.3, and even lower for the Matched PC households (85.5). These facts indicate an association of maleness and mental illness treatment at the state hospital.

However, for Matched PC households the sex ratio was strikingly low compared with the 18-county area sex ratio in every residence category, except for the rural non-farm. For the Matched PC patients the sex ratio was strikingly different from that of the 18-county area for the rural farm group, i.e. 116.1 and 150.0 respectively. This is a noticeable over-representation of the males in the hospital population. This means that males in this population have greater risks and hazards than females that predispose them to state hospitalization. Even the fact that they have "significant others" as correspondents does not always lessen this risk or hazard. It may be that rural-farm women especially are more often treated in private facilities than men. It also appears to be true that the family and the community are more tolerant of the mentally ill woman than the mentally ill man. There is less tendency to call the behavior "bad." There is less fear of the female whose behavior is deviant. Such behavior by women is more often "hidden."

(4) The 18-county area population (in 1960) has a somewhat lesser single population than the state population (see tables 5 & 6), only a slightly lower proportion in the divorced category, but a slightly higher proportion in the married and widowed category than the state population. But there were significant differences by sex in these two parent populations. The married females were more numerous than the married males in both populations, with a greater difference in the 18-county area than in the state population. The single females were less prevalent than the single males, as a proportion of the total, especially in the case of the 18-county area. The widowed females were strikingly more prevalent than widowed males, in both these parent populations, and the divorced females were only somewhat less prevalent than the divorced males in both populations.

The "state" of being married is considerably less prevalent among the patient households, especially among the Unmatched P households, compared with the parent populations. This was so also for the Matched PC male patients, many of whom tended to reside with parents. The Unmatched P patient males had an even significantly lower proportion who were married, including a high number who were separated. The male patients also had a very high proportion who were divorced, especially for the Unmatched P patients. The single male patients were also represented in significantly high proportions, especially for the Matched PC patients.

In the case of patient females the proportion who were single was very low, especially for the Unmatched P patients, compared with the parent populations. The proportion who were married was lower but approximated the parent population proportions. The proportion of female patients who were divorced was very high, especially for the Unmatched P patient females.

In the case of patient households, compared with the parent populations, the marital status situation tended to approximate that of the patient situations rather than that of the parent population situations. The single patient household situation was more prevalent, the married household situation was more prevalent, and the divorced household situation was more prevalent than for the patient population itself. There were significant differences between Unmatched P and Matched PC patient households. These can be summed, with decided qualifications, as follows:

a) The male Matched PC patient households involved more who were married, and the male Unmatched P patient households involved more who were divorced.
b) For females, there were more who were widowed, especially in the case of Unmatched P patient households, and divorce was less prevalent than for the males, except in the Matched PC patient household situation.
c) Marriage, even following divorce, tended to be the prerogative of the female patient, even following several divorces.

(5) From the above statistical facts, supplemented by case history evidence, it can be concluded that marital status, and the associated tension facts of unhappiness in family relations, are significantly associated with mental illness. This is apparently a more pressing situation in a sparsely populated area, where life is more nearly agricultural and necessarily cooperative and more nearly primary group in character. The sources of ten-

sion for adults might be stated as follows, in a tentative manner:

a) The fact of being single, especially for females, but also for males when there is an imbalance of the sex ratio (one where males are more prevalent), is a major stress producing situation.

b) The limited occupational opportunities for males, and certainly for females, are a stress creating influence of great import. For males, though the society emphasizes ownership and familism, the opportunities for family life are limited. For females, because of limited employment opportunities, the pressure to become married, and enter into re-marriage even after mental illness, is a stress creating one.

c) The facts of limited marriage and re-marriage opportunities, coupled with limited employment opportunities, and also coupled with firmly established familistic mores in the traditional sense regarding divorce, are, in all probability, stress creating and thus lead to family relation difficulties that make for divorce. But they are also stress creating for successful community tenure for the released patient. Some patients, especially the males, leave the community. Some, especially the females, return to the former family and community residence, but are as incompetent in instrumental performance as before; and are often as mentally ill as before. They "hide" in their former family situation, or experience great trauma in divorce and re-marriage.

d) Single adult males, upon discharge if not prior to hospitalization, "prey" upon the parental family or on immediate relatives. This is such an apparent situation and fact, that there can be nothing but tragedy when parental or relative households break up or the tolerance for in-living of the patient becomes unbearable. At best, the community tenure of such single male patients, when there are limited job opportunities and no out migration, can be temporary only.

(6) It is significant to note that the native born population was overrepresented in the hospital population compared with the 18-county area and the state population (see table 7), especially in the case of Matched P patients. The foreign born were under-represented, especially for Matched P patients. The over-representation of native born patients is also heavily male, with a sex ratio of 151.4. Furthermore the patient population is heavily represented with native born in the state of Montana, compared with the 18-county area and the state populations, and this was especially the cases for Matched PC patients. The Unmatched patients born in Montana, were very much dominated by males, and were underrepresented in the hospital compared with the 18-county parent and state populations. The proportion of total patient population that is native born but from a state other than Montana, approximates the proportions in the 18-county area and state populations. In this instance, however, the proportion is higher for the Unmatched P patients, and this involves considerably more males than females.

One might conclude that male transiency and residence in an area of sparsity might well be associated with mental illness, as demonstrated by state hospital incidence.

(7) There can be no doubt that inadequate education, especially for males, is a risk factor in mental illness and in continued tenure in the community after discharge, as measured by mental illness incidence based on state hospitalization (table 8 & 9). For the population 25 years and older, those with 8 years or less education have higher proportions in the 18-county area population than in the state population, with less lag for women than men. But the Matched PC patients and Matched PC patient households have very high proportions in this category of 8 years or less education, and especially in the case of the males.

Unmatched P patient households also have high proportions of people in this 8 grade or less completion category when 25 years or older, especially when male patients are involved. For Unmatched P patients, the proportions with 8 or fewer grades of completed education is high too, but not as high as for the Matched PC patient situation, and males do not lag behind females as much in the Unmatched P patient situation.

The reverse of the above is also true, generally. For those 25 years of age and over, higher proportions had high school level or more education in the state than in the 18-county population with women out ranking men except on the college level. Those with this greater education had lesser proportions for patient households, especially for Matched PC households. For Unmatched P households, this was somewhat closer to the 18-county distribution, especially for the lag for males. Females for patient households and patients frequently had more education than males.

Low education for males especially, and differentials in family situations with females having more education are positively associated with risk of exposure to mental illness. Lower education is also identified with longer tenure in the

community after hospitalization, though, as indicated elsewhere, such tenure in the community following hospitalization does not mean the patient is rehabilitated.

It is axiomatic that higher education levels are associated with greater mobility and greater job opportunity and flexibility to fit to new jobs, especially outside the sparsely populated area. Low education level is a risk creating factor for many social problem situations, and mental illness. This is a problem especially for the male of the sparsely populated area.

(8) There are some important occupation differences between the population of mental patients and their households on the one hand, and that of the 18-county area and the state on the other (see table 10). There are necessarily some differences between the 18-county area and the state populations, there being a greater professional, clerical, craftsmen and non-agricultural work force for the state, the 18-county area population being more agriculturally oriented.

Contrasting the patient population and 18-county area situation regarding employment, the following are some highlights:

a) The service workers, especially for females and particularly for the Unmatched P females, are over-represented in the patient population.

b) The farm labor and foreman group, primarily males, particularly in the Unmatched P group, are over-represented in the patient population.

c) The general labor group, all males, are over-represented in the patient population.

d) There was, in the patient population situation, a significantly high number reported as "occupation not reported," especially for Matched PC households, and particularly for females. This is explained by the fact that the patient was ill, unable to work and not seeking work.

e) The agriculturally employed were under-represented in the patient population situation, compared with the 18-county area population, except for the Unmatched females. This would indicate that agriculture contributes less than its share to mental illness in the state institution, probably because of lesser accessability, considering the social facts of the area.

f) For the non-agricultural workers, the patient households, especially for females, were over-represented, compared with the 18-county area population, especially for the Matched PC patient population. Compared with the state population this was not the case—the patient population was in fact under-represented, probably because of lesser accessability to the state hospital.

g) The unemployed were significantly over-represented in the patient household population compared with both the 18-county area and the state populations. This was the case for the unemployed in both agriculture and non-agricultural employment, and for both sexes, except in the case of females for the Matched PC patient households.

h) The occupational groups that were under-represented in the patient households were the professions, the farmers, and farm managers, the business managers, the clerical and the private household workers. These are mostly the non-agricultural groups, and mostly the higher income level households, as compared with the rural. Sometimes, in these groups, there was more under-representation by comparison with state proportions than with 18-county area proportions. Farm wives tended to be the one group strikingly over-represented in the patient household population. It may be that these urban occupational and residential groups have access to other than state hospital facilities for mental treatment, meaning that a study of total incidence of the Midtown Manhattan kind would appear necessary in order to understand the total mental illness situation in a sparsely populated area.

(9) The question of the degree of mobility of mental patients and the role of mobility as a factor associated with mental illness is one to consider. From the scattered evidences available, it could be assumed that mentally ill people, or those threatened with mental illness, move out of the rural areas, including the sparsely populated places; and go to the city. Some mental illness studies, including the Midtown Manhattan study, show a low mobility of patients. This might be expected. Where would a mentally ill person living in the city move to when seeking an escape from the associated stresses and strains? It does not flow from the above facts that mobility is not associated with mental illness in a sparsely populated area. What then is the situation in this respect?

The study staff was impressed with the extent of mobility associated with the mentally ill —their becoming mentally ill and their re-entry into the community. The U. S. census for 1960 had some data on mobility which could be calculated for the 18-county area and the state. It was possible to relate this, with some difficulty,

to patient household information. This is presented in tables 11 and 12. The following are some conclusions.

a) The patient household population, especially that in the Unmatched P patient category, is much more mobile than the 18-county area population, as measured by the lower percentages living in the same house for certain periods of time.

b) This greater mobility is also true for the Matched PC patient households as measured by their moving from their residence to another part of the same county, compared with the 18-county area population. Those living in a different house in 1965 but in another county, compared with 1960, were a higher percentage than for the state, and the 18-county area population, this being especially so for the Unmatched P patient households.

c) For those living outside the state after a 5 year period, the Unmatched P households were strikingly high as compared with the state and 18-county area populations.

d) If migration means lesser affiliation with the community, it is clear that mental illness and migration are highly associated in the sparsely populated area, based on the information above. Case history information would confirm that this includes once stable residents, affiliated with the community, who move to avoid the stigma of being or having been mentally ill, regardless of whether this stigma is in fact a reality, or merely imagined by the members of the patient household.

e) There is also evidence that mental illness is associated with non-mobility (table 12). The 18-county area population had a higher proportion always living in the present location than was true for the state population. But the patient household population contained people who have lived in the present location to even a greater extent than the 18-county area population, especially for Matched PC patient households. For later resident groups, however, the patient household population had smaller proportions in each shorter length of residence group, compared with the 18-county area and state populations.

f) These facts and those in earlier sections of this report would lead to a statement that those least or not mobile include a high incidence of mental illness as well as those with very high mobility—the extremes of a mobility continuum scale. Some patients apparently withdraw into the community for survival, while others reject the community. These facts of mobility are without doubt, related to values and expectations of people who "own" property, and when they own, it is often difficult to move.

On the other hand, the small rural community, while placing high value on ownership, provides few work opportunities for other than owners. Those who were not owners necessarily need to be mobile, even transient. Some who refuse to be mobile, though non-owners, develop survival behavior that tends to be anti-social by definition of the community. These conditions contribute to persons being sent to the state hospital, and to hazards of successful reentry and tenure in the community.

(10) Table 13 gives information on resident institutional population and first admissions to state and county Mental hospitals for the calendar year 1965 for the United States, for Montana, the 18-County Study Area and for select states in the east and for states adjacent to Montana. There is also information on total incidence measured in terms of the 1960 estimated population, and the percentage of the first admission for acute and chronic brain syndrome and alcoholic addiction, and also for schizophrenic reaction. The table contains more information than can be explored here, but some of the highlights will be set out. Except for the Montana 18-county study area, the data are from the **U. S. Public Health Service** (NIMH) reports entitled "Patients in Mental Institutions," 1965, Part II. For the 18-county study area care was taken to obtain the patient data in the same way as for the federal report in order to have comparability. The following are some of the high point results:

a) The incidence for 1965, based on 1965 estimated population was 199.1 per 100,000 population for the 18-county study area. This compares with a rate of 217.4 for all of Montana. For the United States in its entirety, this rate was 252.3. For New York state it was 479.4; for New Jersey, 300.2; for Connecticut, 289.6; and for Rhode Island, 360.2. For North Dakota the rate was 233.1; for South Dakota, 237.8; for Wyoming, 204.4; for Idaho, 109.1; and for Utah, 58.6.

There are reasons for these rate variations, among them the influence of family and community in the case of Utah and Idaho. Urbanization and industrialization undoubtedly account for the higher rates for New York, New Jersey, Connecticut and

Rhode Island; but ready access to facilities is probably one of the important explanations, too. For Montana, the Dakotas and Wyoming the explanation for the lower incidence is the lesser use—evidence of the social cost of space, the writers feel. The final answer to this can be found only when there is a full patient count as was obtained by the Midtown Manhattan type of study.*

b) For the listed states, the rate for the eastern states tends always to be higher for the females than the males, while for the western, sparsely populated states the male rate tends to be higher, with the exception of South Dakota. This probably is coupled with the sex ratio—in urban and industrial states women make up a greater proportion of the population; while for western states men tend to exceed the women in numbers.

c) Since some states grow more rapidly in population numbers than others, the 1965 institutional population was calculated as an incidence ratio of the 1960 population, a more accurate population count. The differentials pointed out above appear not to have been significantly affected by using the 1960 or the 1965 population base, except that the 1960 incidence rate is always higher by virtue of the lower population base.

d) The state and county mental hospitals all have patients who are on home leave, who are absent without leave or who are not in the hospital, but treated with hospital outreach programs in their communities. They are still a part of the state and county hospital responsibility. These are defined as extra-mural patients. They are, however, not a count of the private clinic and private practitioner cases.

The extra-mural patient count was added to "in hospital" treatment patients and a total patient count for contact with state and county hospitals was obtained, and an incidence ratio was calculated. Except for one point, the writers will not comment on this extra-mural incidence count as compared with the "in hospital" incidence count, because to do so would require lengthy explanations.

The exceptional comment is this. With some exceptions, the differential between extra-mural incidence and the in-residence incidence for the sparsely populated states and the 18-county study area tends to be less than for the more densely populated states in the East. To the writers this means that the less sparsely populated states have fewer extra-mural programs, and access to state (and county) mental hospital service is not enhanced by extra-mural service, as a rule. In fact, in the sparsely populated states there are few, if any, county mental hospitals. So the extra-mural program is as inaccessable, with exceptions, as the state mental hospital services. Of the sparsely populated states, Utah, Idaho and North Dakota have made a concerted attempt to get mental health services to residents recently, and especially in an extra-mural sense, but whether this can be maintained long because of the high social cost of space is still to be demonstrated.

For the 18-county study area, one that is most isolated and most pressed with social costs of space, the extra-mural program appears to have added least to patient accessability. Case history information obtained by the writers for the 18-county area, woud indicate that patients, remote from the state hospital as they are, even sever their home leave status in greater proportion than appears to be the case for patients nearer to the hospital—the social cost of space is so unmanagable that even tenuous contact with the remote hospital is costly. Only novel and ingenious new programs could maintain the connections.

Since 1965, a portion of the 18-county study area, plus some other equally remote

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* The province of Saskatchewan, Canada, has in effect for a number of years, a comprehensive prepayment program. Statistics are available on **Costs of, and Patients seen by the Psychiatric Services Branch, Dept. of Public Health**, Saskatchewan, 1967 and 1968 as follows:

Year	Costs	Patients	Population (Est.)	Incidence
1967	$ 8,983,390	10,400	955,500	1088
1968	10,198,430	10,000	956,000	1046

The above data indicate a total (probably nearly total) incidence rate (primarily not including public institutional cases) i.e., over 1000 persons per 100,000 population as compared with 199.1 per 100,000 for the 18-county study area for those institutionalized in the Montana State Hospital, and an equivalent figure of 217.4 for all of Montana. This would appear to indicate an incidence for mental illness in Saskatchewan (especially if theirs' is exclusive of institutional cases) that is at least 10 times that of Eastern Montana, recognizing that the Eastern Montana is based on institutional cases only. In brief, there appear to be no social and cultural reason why the Eastern Montana incidence should not be at least 10 times higher than it now is, except for the fact that prepayment as in Saskatchewan makes treatment more accessable and perhaps more acceptable. The authors are indebted to Professor J. A. Boan, University of Saskatchewan, Division of Social Sciences, Regina Campus for these data, solicited through him from the Research Branch, Department of Public Health, Regina, Saskatchewan. This comparison is most tentative, but indicative of what might be minimal program needs for Eastern Montana.

areas, developed a community mental health service program for themselves. Whether, because of the social cost of space problem, this can be established and maintained is still to be tested. The program got underway, in a limited manner, in December of 1967.

e) The incidence of acute and chronic brain syndrome and alcoholic addiction tends to be significantly high for sparsely populated states such as Montana, the Montana 18-county study area, South Dakota and Wyoming. In the equally sparsely populated states of North Dakota, Idaho and Utah this incidence is lower, undoubted for family, community and religious reasons in significant part. For the United States as a whole, the incidence is low also, and for the listed densely populated states it is lower than for Montana.

For all states, and especially the sparsely populated ones, this incidence rate is strikingly higher for males than for females. The writers explain this, in large part, by pointing out that the "strong western male" is a coward when it comes to stress and strain situations and mental illness; he is inclined to use the saloon as a crutch and as a psychiatric couch. This often "makes him appear to be a man," in his own eyes at least. And sometimes women become involved; as the high female rates for Montana and Wyoming would appear to indicate. It should be remembered, however, that the high sex ratio—a greater proportion of males—in these sparsely populated areas is a contributing factor also.

f) The schizophrenic reaction incidence rate was higher in the 18-county study area than for all Montana. Only Utah, Idaho, New Jersey exceeded this rate. Also the U. S. total rate exceeded this. Effectiveness of diagnosis probably accounts for some of these differentials in rate between states, but the writers also feel that the law of small numbers for some of these states accounts for some of the differences—a result of the sparsity of population and the social cost of space impact because of lack of adequate diagnosis and adequate facilities for diagnosis.

The female rate for schizophrenic reaction is always higher for women than men, for the listed states, except in the case of all of Montana and for Wyoming. However, for the 18-county study area, this female rate is exceptionally high, and the male rate exceptionally low. In part, this is to be explained by the unpredictability of small numbers and small number of events for the 18-county study area, for Montana, and also for Wyoming. It may also be related to inadequate diagnosis, and inadequate time and facilities for diagnosis. In the last analysis, this is again a social cost of space. How can patients be properly treated if the opportunity for diagnosis is limited?

(11) Greater distances from facilities, in this case the Montana State Hospital, limits the proportion of the population who use the facility and the intensity of use by those who do use it. The more distant areas from the state hospital are also the most sparsely populated. Hence, again, appears the social cost of space phenomenon for the sparsely populated areas, even in a relatively sparsely populated state such as Montana.

Despite paying an equitable tax dollar support for the public service, and a larger private transportation and other expenditure cost to the facility, the distance inaccessibility makes for lesser use, and creates additional social problems in the distant communities and households of patients or potential patients that can only be defined as social costs of space. The limited known facts do not indicate that a lower incidence of mental illness is to be expected in a sparsely populated area, but only a Midtown Manhattan kind of study would reveal the final incidence situation in this respect.

Data to support the above statements were obtained from a special data analysis carried out by this study staff, using the state hospital intake and discharge data for the calendar years 1963 and 1964.[5]/ Since the base population for the 18-county area was 90,208 in 1960, these 1963 and 1964 intake and discharge data were obtained for it, for an equal sized population area (90,448) around Yellowstone county including the larger city of Billings, about intermediate distance to the State hospital, and for a third area (91,812 population) immediately adjacent to the state hospital.

For the 18-county study area, the farthest county seat town was 535 miles distant and the closest was 221 miles distant, by highway connection, and there were 1.98 persons per square mile. The intermediate distance area had a den-

5/ The details are as yet unpublished but are available as a "Progress Report of Mental Patients in Sparsely Populated Montana," Dec. 1965, Sociology Department, Montana State University. Details will be published in Montana Agricultural Experiment Station Bulletins Nos. 646 and 647.

sity of 10.4 persons per square miles, with county seat towns 177 to 270 miles distant from the state hospital. However, Billings had a public mental health clinic and the services of several private psychiatrists.

The third area, next to the hospital, had several larger cities, and county seat towns were as near as 7 and 25 miles to the state hospital, the most distant being only 75 miles away. Though the population was compacted in cities and towns, as well as in irrigated farming areas, the presence of much public domain in this inter-mountain area result in a density of only 5.75 persons per square mile.

A total of 1884 patients (unduplicated count) received treatment at the state hospital from these three areas (each about 90,000 population) during the two-year period 1963 and 1964. For the 18-county area, this involved 433 patients; for the intermediate area (Billings) with some public and private facilities, this involved 449 patients; and for the area next to the hospital this involved 1002 patients. In each instance the males served were greater in number than the females. The average number of events at the hospital for the three areas, respectively, were 2.4, 2.3 and 3.6.

Coupled with some other data available from other studies, it is the guess of these writers that a distance greater than 75 miles operates strongly against use of facilities, especially for mental health. All sorts of family, school, job, and transportation cost factors and responsibilities interfere with effective use of services beyond that distance, and even at that distance. This then makes a strong case for having these services located in communities close to where people reside and work, and for sparsely populated areas this means drastic modification of service programs, and higher social costs of space.

Some Conclusions

Based on the data above and related data published elsewhere, or to be published, the following conclusions and recommendations are offered for what they are worth to the reader:

(1) There are striking deficits of services and service delivery to the sparsely settled residents of this large 18-county area. The one emphasized here are in health services, facilities and personnel; but they are not limited to these. Welfare and social security services, education services, public information services and economic service of all kinds are available in deficit quantities. There are many prospective employment opportunities in the area, if these deficit services were brought to a level equal to those elsewhere. New income sources would be produced, and income would circulate in the area. Public and private revenue now available as "entitlements" to residents (medicare payments are only one example) can not circulate in the area if there are not services to take this revenue, it goes outside the area for circulation there, leaving the deficit area in further financial stress condition.

(2) The area has certain other population and social inequities that are glaringly apparent and that need correction, requiring the help of state and national policy goals and efforts. Among these are: (a) a strikingly imbalanced sex ratio, i.e. many more adult males than females, a fact which necessarily contributes to social anomae; (b) a striking proportion of the population with inadequate education, especially for males, explained in part by the exodus of those with education, and a condition which limits access to employment; (c) a low and even deficit family living income problem hindered by limited employment opportunities in other fields of employment, forcing many households to survive on one income source while in other areas many households have more than one earner income.

(3) Compared with other areas, this sparsely populated 18-county area has few and limited institutional mechanisms, devices and programs to bring the area into adjustment with the rest of the nation in view of the tremendous social change that has developed. The adjustments that have been accomplished are in the field of agricultural production technology and services, the consequence being an emphasis on efficiency that has reduced the employed population base. There has been no dramatic evolution of services and guidance help to counter this denuding effect of technology by even offering mile-posts for multiplication of services and opportunities in the area of social living—there have been only limited and feeble attempts, fraught with frustration, prejudice, fear and lack of courage to institute necessary introduction of appropriate innovation and expansion in the service area field.

However since mid-1967 the residents of eastern Montana have banded themselves together in various ways to obtain some of these services, starting with retardation, mental health and comprehensive health services. State, regional and federal agencies are extending themselves into eastern Montana to serve as institutional structures to assist the residents in accomplishing this social change effort. Besides the Montana legislature, this includes the greater University of Montana, the State Mental Health Authority and State Hospital, the State Board of Institutions, the State Board of Health and the Office of

State Public Instruction. Whether this extension of an institutional mechanism as an umbrella under which change can be instituted in the local social systems for an institutionally deprived area can actually be accomplished will be tested by time.

(4) The writers have subsumed the above deficits, and others still to be measured, for this sparsely populated area under the heading of "the social cost of space." The deficits themselves and the higher costs to remove them, are social costs in that they inflict other deficits, and also in that they are postponed and also transferred from the individual to the group and to the public. Furthermore this public includes the nation as a whole since the 18-county area is essential to the well being of the nation. The social cost of space concept is a tool whereby the social accounting of efforts can be more clearly effected.

(5) The writers recommend that the mini-communities be encouraged to maintain themselves, but that they join together, using the technique of specialization for major services, into a multi-legged special service complex approach to obtain services. By this is meant that certain larger towns, strategically located, besides retaining their mini-community status, proceed to develop a specialized function in some service area, serve themselves but extend their specialized services to all other mini-communities in the larger service area. A second mini-community will retain its mini-service, but elect a second area of specialization and will serve itself, but extend the specialized services to all other mini-communities in the larger service area. And so on for other services.

The object would be for one town not to commandeer all the services and arrogate all the functional developments unto itself—and therefore not raid all the area for its own selfish growth. To proceed on such an arrogant path would be to denude the entire area of population, and so to eventually suffer destruction itself. It would appear that current facts about metropolitan and urban problems would demonstrate that the larger smaller towns must avoid placing themselves in the same arrogant position as the metropolitan centers have done, but instead develop a system of inter-cooperation between all mini-communities for growth in the entire area.

The writers recommend such a mini-community cooperation for a larger service area for specialized services. But the writers also recommend there be no consolidation of counties for example, but rather the use of existing counties as the social structure whereby mini-communities can interact together into spheres of obtaining specialized services for themselves. At the same time this avoids the destruction of role and status opportunities that accompanies consolidation, and implements democratic participation. Taxes and private income in the community become income to others in the community, and will enhance the income and services of all. Consolidation, with a defrocking of people to achieve role and status functions in the community, is a denial of that which is social for the mere sake of efficiency in manpower and dollars—a state of affairs which does the community no good. This recommendation does not imply that tax and private revenue should be squandered on useless efforts, but new efforts need to be developed to spend this revenue within the mini-communities where people reside.

(6) The facts in the earlier part of the manuscript would cause these writers to recommend that the mini-community inter-cooperation into a multi-legged specialized service community for eastern Montana include programs in the following fields:

a) education and job manpower training programs.
b) public works programs to provide work for the under-employed and unemployed.
c) retardation program.
d) mental health program.
e) coordinated hospital service program.
f) coordinated nursing home service program.
g) comprehensive public health service program.
h) comprehensive medical administration service program.
i) comprehensive health services program.
j) social security administration programs.
k) ministerial supervision program.
l) county commissioner training program.
m) two-way television service program.
n) farm and ranch support income and practices administration programs.
o) business services administration programs.
p) public welfare administration program.
q) professional in-service education programs, i.e. nurses, sanitarians, welfare workers, etc.
r) adult education service programs.
s) recreation service programs.

(7) Because of the high social cost of space, and the low comparatively low per capita family living income for the sparsely populated regions, additional funds are necessary if usual standard of-living services are to be available, including mental health services. Public monies, federal and state, for such programs are one way of redistributing the national income, since the market

place has not provided equitable income. Income outlay for such vital services as health care and adequate education needs to be supported by public funding from the more favored income areas of the nation commonly favored by historical accident. Concentration of power, including economic and market-place power, and monopoly-like concentration of the processing service efforts and higher paying jobs favor certain regions and parts of regions.

It is time to accept an income-outgo accounting system between regions in order to determine overall deficits in income as they occur, and then make public payments to correct the maldistribution—to provide a basis for an internal balance-of-payments mechanism in the Nation. Federal monies would then be used to more adequately correct the maldistribution, and such additional income needs to go to undergirding the group and service designated programs. These need to be built to full quality and capacity strengths. Distribution of income to individuals with intent to bring about equalization, would merely be dissipated again, and social costs of space would be further enlarged.

The current two-criteria formula for distribution of federal grants-in-aid, namely, numbers of people and per capita income ranking, are not adequate to the situation. A third factor, namely a cost of space factor, should become a third criterion in the formula. This would help remove the deficit for Montana and other sparsely populated states, and would also apply within the states. Until such a time as a balance of payments system could be developed, such a third criterion is needed to reverse the population drift to the cities.

It would appear that adult education is the process whereby this program effort might be accomplished. The national congress now requires comprehensive health planning in order that national funds, and state funds too, be used to develop adequate local health programs. It would be unfortunate if the above suggestions are not considered as basic to an operable program for residents of the sparsely populated areas, Montana included. Only after such an institutional base has been established to support adequate services, can the private systems operate effectively, and together with public systems, provide quality services to the residents.

Public resources, hopefully more adequate than in the past for the sparsely populated places, can be used to hold and create new opportunities for residents of the region, and, thereby, arrest the out flow of population. This is at the heart of community building for the sparsely populated area. Federal, state and local monies, together with private monies, can provide financing for mental health programs which serve people where they are in the sparsely populated places.

Tables 1 through 13

TABLE 1: Number and sex of patients discharged from the State Hospital between January 1, 1963 and July 1, 1965 classified by patient situation for 18 sparsely populated Eastern Montana counties.*

Patient Situation	PATIENT NUMBER		
	MALE	FEMALE	TOTAL
Matched PC cases[1]/	59	54	113
Unmatched P cases[2]/	49	19	68
Total	108	73	181
Exclusions[3]/	83	55	138
Total	191	128	319

1/ Matched PC means patients for which there is detailed information along with detailed information for a correspondent (spouse, parent, relative or other person).

2/ Unmatched P means patient information from the patient only or a correspondent only or from hospital records only.

3/ Exclusions were discharged patients who were 65 years or older, Indians, patients who had organic brain damage or who did not return to counties of study due to death, deportation, transfer or for other reasons.

* The counties of study are Big Horn, Carbon, Carter, Custer, Dawson, Fallon, Garfield, Golden Valley, McCone, Musselshell, Petroleum, Powder River, Prairie, Richland, Rosebud, Treasure, Wheatland, and Wibaux.

TABLE 2: Montana populations* classified by age groups for various state and 18-county patient population groups showing dependency ratio and median age.

Area of Analysis	Total	Dependent under 19	Dependent over 65	Dependent Total	Working population age 19 to 65	Dependency ratio[3]/ under 19	Dependency ratio[3]/ over 65	Dependency ratio[3]/ Under 19 & over 65	Median Age
Total state population	674,767	269,637	65,420	335,057	339,710	79.4	19.2	98.6	27.6
Total state white population[1]/	650,738	256,962	64,198	321,160	329,578	78.0	19.5	97.5	28.5
Total state non-white population	24,029	12,675	1,222	13,897	19,132	125.1	12.1	137.2	17.1
18-County Total[2]/	85,429	35,480	9,363	44,843	40,586	87.4	23.1	110.5	28.5
Matched PC Household Population	382	148	20	168	214	69.2	9.3	78.5	32.5
Unmatched P Household Population	151	47	5	52	99	47.5	5.0	52.5	32.3
Matched and Unmatched Household Population	533	195	25	220	313	62.3	8.0	70.3	32.4
Matched PC Patients	113	7	0	7	106	6.6	0	6.6	39.7
Unmatched P Patients	68	1	0	1	67	1.5	0	1.5	44.0
Non-Study Patients	47	2	17	19	28	7.1	60.8	67.9	43.7
All Patients Treated and Discharged to Area of Study	228	10	17	27	201	5.0	8.4	13.4	41.8
Transfers, Deaths, Others	91	8	58	66	25	32.0	232.0	264.0	69.0
Total Patients	319	18	75	93	226	8.0	33.2	41.2	46.1

1/ Is exclusive of Indians and other non-whites.
2/ Exclusive of Indians in Big Horn and Roosevelt Counties.
3/ Sometimes dependency ratios are given in 1000's of adults; sometimes in 100's of adults. This is in the latter form, giving the number of dependents per 100 adults age 19 to 65.
* State and 18-county populations are for 1960 and patient populations for 1965.

TABLE 3: Montana populations classified by residence categories and sex sub-classes.

AREA	Residence and Sex Categories*														
	TOTAL			RURAL			URBAN			RURAL FARM			RURAL NON-FARM		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State Population[1]/	674.8	343.7	331.0	336.3	176.8	154.5	338.5	167.0	171.5	105.6	57.2	48.4	230.7	119.1	111.5
Total State White Population[1]/	650.7	331.4	319.3	316.7	166.7	149.9	334.1	164.7	169.4	102.5	55.5	46.9	214.1	110.8	103.3
Total State Non-White Population[1]/	24.0	12.4	11.7	19.7	10.1	9.6	4.4	2.3	2.1	3.1	1.6	1.5	16.6	8.4	8.2
18-County Population[1]/	89.1	46.3	42.8	63.3	33.0	30.3	25.8	13.3	12.5	26.8	14.4	12.4	36.5	18.6	17.9
Matched PC Household[2]/	382	188	194	254	129	125	128	59	69	86	42	44	168	87	81
Unmatched P Household[2]/	151	91	60	98	65	33	53	26	27	25	16	9	73	49	24
Study Household Population[2]/	553	279	254	352	194	158	181	85	96	111	58	53	241	136	105
Matched PC Patients[2]/	113	59	54	69	37	32	44	22	22	25	15	10	44	22	22
Unmatched P Patients[2]/	68	49	19	51	39	12	17	10	7	12	9	3	39	30	9
Total Study Patients[2]/	181	108	73	120	76	44	61	32	29	37	24	13	83	52	31

1/ The first four rows are given in thousands, the remaining rows representing the complete count.
2/ For 1960.
* As of January 1, 1965.

TABLE 4: Sex ratio* for Montana populations classified by residence categories and sex sub-classes.

AREA	Sex Ratio by Residence Category				
	TOTAL	RURAL	URBAN	RURAL-FARM	RURAL-NON-FARM
	Sex Ratio	Sex Ratio	Sex Ratio	Sex Ratio	Sex Ratio
Total State Population[1]/	103.9	110.8	97.4	118.0	106.9
Total State White Population[1]/	103.8	111.2	97.2	118.3	107.2
Total State Non-White Population[1]/	106.1	104.8	112.3	109.0	103.0
18-County Population[1]/	108.0	109.0	106.4	116.1	103.9
Matched PC Household[2]/	96.9	103.2	85.5	95.5	104.4
Unmatched P Household[2]/	151.7	196.9	96.3	117.8	204.2
Study Household Population[2]/	119.8	122.8	88.5	109.4	129.5
Matched PC Patients[2]/	109.3	115.6	100.0	150.0	100.0
Unmatched P Patients[2]/	258.0	325.0	142.9	300.0	333.3
Total Study Patients[2]/	147.9	172.7	110.3	184.6	167.7

* When the sex ratio is used, women are always 100, and so the ratio is the number of men per 100 women.
1/ For 1960.
2/ As of January 1, 1965.

TABLE 5: Montana Populations classified by marital status for those 14 years of age and older.

AREA	Marital Status for Population 14 and over*														
	BOTH SEXES					MALE					FEMALE				
	Total	Single	Married	Widowed	Divorced	Total	Single	Married	Widowed	Divorced	Total	Single	Married	Widowed	Divorced
Total State Population[1]/	458.4	101.2	310.0	33.8	13.3	234.2	63.0	155.3	8.5	7:5	224.2	38.2	154.8	25.4	5.9
Total State White Population[1]/	444.8	97.1	302.1	32.9	12.7	227.1	60.4	151.4	8.1	7.1	217.7	36.7	150.6	24.8	5.6
Total State Non-White Population[1]/	13.6	4.1	8.0	1.0	0.6	7.1	2.6	3.8	0.4	0.3	6.5	1.5	4.1	0.6	0.3
18-County Population[2]/	57.8	12.6	39.4	4.4	1.5	30.0	8.3	19.8	1.0	0.9	27.8	4.3	19.7	3.3	0.6
Matched PC Household[4]/	280	82	161	10	27	137	46	79	1	11	143	36	82	9	16
Unmatched P Household[4]/	108	28	42	8	30	67	21	22	2	22	41	7	20	6	8
Study Household Population[4]/	338	110	203	18	57	204	67	101	3	33	184	43	102	15	24
Matched PC Patients[4]/	112[3]/	27	60	2	23	58[3]/	21	24	1	12	34	6	36	1	11
Unmatched P Patients[4]/	68	16	20	3	29	49	15	9	1	24	19	1	11	2	5
Study Patient Population[4]/	180[3]/	43	80	5	52	107[3]	36	33	2	36	73	7	47	3	16

* The first four rows are given in thousands, the remaining rows representing the complete count.
1/ For 1960.
2/ For 1960 and minus Rosebud and Big Horn Indians.
3/ One male less than 14 years of age is not included.
4/ As of January 1, 1965.

TABLE 6: Percentage distribution for Montana populations classified by marital status for those 14 years of age and older.

AREA	Percentage Distribution of Marital Status Categories														
	BOTH SEXES					MALE					FEMALE				
	Total	Single	Married	Widowed	Divorced	Total	Single	Married	Widowed	Divorced	Total	Single	Married	Widowed	Divorced
Total State Popualtion[1]/	100.0	22.1	67.6	7.4	2.9	100.0	26.9	66.3	3.6	3.2	100.0	17.0	69.0	11.3	2.6
Total State White Population[1]/	100.0	21.8	67.9	7.4	2.8	100.0	26.9	66.7	3.6	3.1	100.0	16.9	69.2	11.4	2.6
Total State Non-White Population[1]/	100.0	29.9	58.5	7.1	4.4	100.0	36.3	54.0	5.0	4.6	100.0	22.9	63.4	9.4	4.3
18-County Population[2]/	100.0	21.8	68.2	7.5	2.5	100.0	27.5	65.9	3.5	3.0	100.0	15.8	70.7	11.9	2.0
Matched PC Households[3]/	100.0	29.3	57.5	3.5	9.6	100.0	36.5	62.7	0.8	8.7	100.0	35.2	57.3	6.3	11.2
Unmatached P Households[3]/	100.0	25.9	38.9	7.4	27.8	100.0	31.3	32.8	3.0	32.8	100.0	17.1	48.8	14.4	19.5
Study Household Population[3]/	100.0	28.0	52.6	4.7	14.8	100.0	32.8	49.5	0.5	16.2	100.0	22.5	56.0	8.2	13.2
Matched PC Patients[3]/	100.0	24.1	53.6	1.8	20.5	100.0	36.2	41.4	1.7	20.7	100.0	11.1	66.7	1.9	20.4
Unmatched P Patients[3]/	100.0	23.5	29.4	4.4	42.6	100.0	30.6	18.4	2.0	49.0	100.0	5.3	57.9	10.5	26.3
Study Patient Population[3]/	100.0	23.9	44.4	2.8	28.9	100.0	33.6	30.8	1.9	33.6	100.0	9.6	64.4	4.1	21.9

1/ For 1960. 2/ For 1960 and minus Rosebud and Big Horn Indians. 3/ As of January 1, 1965.

TABLE 7: 1960 Montana populations by place of birth and the percent of total.

	Total		DISTRIBUTION BY PLACE OF BIRTH									
			Foreign Born		Native Born		Born in State of Residence		Born in different state		Other	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
State of Montana	674,767	100	30,646	4.5	644,121	95.5	384,721	57.0	248,844	36.9	10,556	1.6
18-County Area	90,205	100	4,375	4.9	85,830	95.1	51,562	57.2	33,238	36.8	1,030	1.1
Total Patients	181	100	5	2.8	176	97.2	108	59.7	68	37.6	—	—
Matched PC Patients	113	100	2	1.8	111	98.2	77	68.1	34	30.1	—	—
Unmatched P Patients	68	100	3	4.4	65	95.2	31	45.6	34	50.1	—	—
Sex ratio of total patients		147.9		66.7		151.4		163.4		134.5	—	—

TABLE 8: Montana populations by education and sex of those 25 years and older (in number).

AREA	EDUCATION LEVELS																				
	6 yrs. or Less			7-8 Years			H.S. (1-3 yrs.)			H.S. (all 4 yrs.)			College (1-3 yrs.)			College (4+ yrs.)			Grand Total		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State*	30.4	18.1	12.3	94.0	55.3	38.7	61.5	30.6	30.9	99.9	44.9	55.1	43.5	16.7	26.7	26.9	16.3	10.5	356.1	181.9	174.2
Sex Ratio		147.4			142.8			99.0			81.5			62.7			154.6			104.4	
18-County*	4.6	2.7	1.9	14.7	8.8	5.9	7.6	3.7	3.8	12.1	5.6	6.4	5.1	1.7	3.4	2.6	1.4	1.1	46.6	24.0	22.7
Sex Ratio		142.4			148.7			97.2			87.2			49.0			126.1			105.8	
Matched PC Household[1]/	43	26	17	63	43	20	31	19	12	51	22	29	25	11	14	4	3	1	217	124	93
Sex Ratio		152.9			215.0			153.3			75.9			78.6			300.0			133.3	
Unmatched P Household[1]/	17	13	4	20	15	5	20	14	6	23	11	12	10	6	4	2	2	0	92	61	31
Sex Ratio		325.0			300.0			233.3			91.7			150.0			200.0			196.8	
Total Study Patients	60	39	21	83	58	25	51	33	18												
Household[1]/										74	33	41	35	17	18	6	5	1	309	185	124
Sex Ratio		185.7			232.0			183.3			80.5			94.4			500.0			149.2	
Matched PC Patients	13	8	5	36	23	13	11	8	3	26	10	16	11	5	6	1	1	0	98	55	43
Sex Ratio		160.0			176.9			266.7			62.5			83.3			100.0			127.9	
Unmatched P Patients[1]/	8	6	2	14	10	4	13	11	2	12	6	6	8	4	4	5	5	0	60	42	18
Sex Ratio		300.0			250.0			550.0			100.0			100.0			500.0			233.3	
Total Study Patients[1]/	21	14	7	50	33	17	24	19	5	38	16	22	19	9	10	6	6	0	158	97	61
Sex Ratio		200.0			194.1			380.0			72.7			90.0			600.0			159.0	

* These rows are given in thousands (the remaining rows representing the complete count) and are for 1960.
Male Median years of education was 10.7 in 1960 for the State as a whole.
Female Median years of education was 12.1 in 1960 for the State as a whole.
1/ Patient household and patient data as of 1965.

TABLE 9: Montana populations in terms of per cent by education and sex for those 25 years old and older.

AREA	EDUCATION LEVELS																				
	6 Yrs. or Less			7-8 Years			H.S. (1-3 Yrs.)			H.S. (all 4 yrs.)			College (1-3 yrs.)			College (4+ yrs.)			Grand Total		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State*	8.5	9.9	7.0	26.4	30.4	22.2	17.3	16.8	17.7	28.1	24.7	31.6	12.2	9.2	15.3	7.5	9.0	6.1	100	100	100
18-County*	9.9	11.3	8.4	31.5	36.7	26.1	16.3	15.6	17.0	25.9	23.4	28.5	10.9	6.9	15.0	5.6	6.0	5.1	100	100	100
Matched PC Households[1]/	19.8	21.0	18.3	29.0	34.7	21.5	14.3	15.3	12.9	23.5	17.7	31.1	11.5	8.9	15.1	1.8	2.4	1.1	100	100	100
Unmatched P Household[1]/	18.5	21.3	12.9	21.7	24.6	16.1	21.7	23.0	19.4	25.0	18.0	38.7	10.9	9.8	12.9	2.2	3.3	0.0	100	100	100
Total Study Household[1]/	19.4	21.1	16.9	26.9	31.4	20.2	16.5	17.8	14.5	23.9	17.8	33.1	11.3	9.2	14.5	1.9	2.7	0.8	100	100	100
Matched Patients[1]/	13.3	14.5	11.6	36.7	41.8	30.2	11.2	14.5	7.0	26.5	18.2	37.2	11.2	9.1	14.0	1.0	1.8	0.0	100	100	100
Unmatched P Patients[1]/	13.3	14.3	11.1	23.3	23.8	22.2	21.7	26.2	11.1	20.0	14.3	33.3	13.3	9.5	22.2	8.3	11.9	0.0	100	100	100
Total Study Patients[1]/	13.3	14.4	11.5	31.6	34.0	27.9	15.2	19.6	8.2	24.1	16.5	36.1	12.0	9.3	16.4	3.8	6.2	0.0	100	100	100

* For 1960.
1/ For 1965.

TABLE 10: Percentage distribution of Montana populations by type of employment and by sex for those 14 years of age and older for the state, the 18-county area and the patient household populations for the 18-county area.

AREA	TYPE OF EMPLOYMENT																				
	Professional			Farmer-Farm Mgr.			Managers			Clerical & Sales			Craftsmen & Operators			Private Household Worker[1]			Service Worker		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State*	11.2	9.0	16.5	10.9	15.0	1.2	10.0	11.9	5.6	18.3	10.6	36.7	23.9	31.8	4.9	2.3	0.1	7.5	10.2	5.5	21.5
Total 18-County*	9.9	6.7	1.9	21.5	28.0	3.1	9.2	10.2	6.3	14.0	7.9	31.1	19.0	24.3	4.0	1.9	0.1	7.1	9.3	4.4	23.1
Matched PC Household Population[3]/	4.7	2.7	8.6	12.9	17.7	3.4	2.3	2.5	0	5.3	5.3	5.2	9.4	14.2	0	1.8	0	5.2	18.1	8.8	30.2
Unmatched P Household Population[3]/	1.8	2.1	0	7.3	6.4	12.5	0	0	0	9.1	10.6	0	12.7	14.9	0	1.8	0	12.5	18.2	8.5	75.0
Total Study Household Population[3]/	4.0	2.5	7.6	11.5	14.4	4.5	1.8	2.5	0	6.2	6.9	4.5	10.2	14.4	0	1.8	0	6.1	18.4	8.8	40.1

1/ Does not include housewives not looking for work. * 1960. 3/ As of study periods.

	TYPE OF EMPLOYMENT																	
	Farm Laborer			Laborers			Occupation not reported[2]			Agr. Employed			Non-Agr. Employed			TOTAL		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State*	5.4	7.0	1.5	4.9	6.8	0.3	3.0	2.4	4.4	15.2	20.5	2.5	78.3	73.0	90.7	93.5	93.5	93.3
Total 18-County*	9.5	12.1	2.2	3.6	4.7	0.3	2.2	1.6	4.1	29.0	37.3	5.7	61.6	53.4	84.7	95.1	95.1	95.0
Matched PC Household Population[3]/	6.4	8.8	1.7	16.4	24.8	0	22.8	14.2	39.7	16.6	21.7	4.9	69.3	60.1	90.2	100	100	100
Unmatched P Household Population[3]/	21.8	25.5	0	20.0	23.4	0	7.3	8.5	0	21.9	23.4	11.1	53.4	50.0	77.8	100	100	100
Total Study Household Population[3]/	10.2	13.8	1.5	17.3	24.4	0	19.0	12.5	34.8	18.1	22.3	5.8	65.3	56.9	89.9	100	100	100

2/ Persons over 14 who are in school, or ill, or unable to be employed. 3/ As of study periods.

	UNEMPLOYED									GRAND TOTAL LABOR FORCE		
	Unemployed Agr.			Unemployed non-Agr.			Total Unemployed					
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
Total State*	0.5	0.7	0.1	6.0	5.7	6.6	6.5	6.4	6.7	100	100	100
18-County*	0.9	1.2	0.4	3.8	3.5	4.8	4.9	4.7	5.1	100	100	100
Matched PC Household Population[3]/	1.5	2.2	0	12.6	15.9	4.9	14.1	18.1	4.9	100	100	100
Unmatched P Household Population[3]/	2.7	1.6	0	21.9	25.0	11.1	24.7	26.6	11.1	100	100	100
Total Study Household Population[3]/	1.1	1.5	0	15.1	18.8	4.3	16.6	20.8	4.3	100	100	100

* 1960. 3/ As of study periods.

TABLE 11: Percent of populations 5 years old and over by residence in 1955 and residence in 1960 for Montana and for the 18-county study area, and for patient household populations for five years up to July 1, 1965.

	RESIDENCE IN 1955 vs. 1960 EXPRESSED AS A PERCENT OF THE TOTAL				
Area	Same House	Different House Same County	Different County Same State	Other, including other State	TOTAL
State Total	47.6	27.7	11.6	13.1	100.0
18-County Area	53.2	26.0	10.5	10.3	100.0
Matched PC Household Population*	38.4	41.2	16.6	3.8	100.0
Unmatched PC Household Population*	14.9	20.2	22.4	42.5	100.0
Total Patient Household Population*	31.8	35.4	18.2	14.6	100.0

* For the patient population the five-year interval was just prior to July 1, 1965. This was prior to and following the qualifying hospitalization for each patient household.

TABLE 12: Percent of population 5 years old and over by time of settlement in present residence for Montana up to and including 1969 for the state and the 18-county study area and for patient household populations for five years up to July 1, 1965.

	MOVED INTO PRESENT RESIDENCE EXPRESSED IN PERCENT								
Area	Always Lived Here	1949 & Prior	1950-56	1957-58	1959-60	1961-63	1963-65	Unknown & Other	Total
Total State	4.8	19.0	26.8	17.8	31.6	—	—	—	100.0
18-County Area	6.4	22.4	25.4	16.8	29.0	—	—	—	100.0
Matched PC Household Population*	14.0	15.7	9.0	4.7	3.8	12.8	40.0	0	100.0
Unmatched P Household Population*	6.0	8.2	2.2	3.0	1.5	4.5	73.1	1.5	100.0
Total Patient Household Population*	11.7	13.3	7.2	4.2	3.2	10.5	49.4	0.4	100.0

* See footnote, Table 11.

TABLE 13: Total population in state and county facilities of the United States and selected states, including Montana, showing incidence ratios, total first admissions, and those for acute and chronic alcoholism and for schizophrenic reaction, by sex, for 1965.[1]/

In State and County Mental Hospitals	UNITED STATES			NEW YORK			NEW JERSEY			CONNECTICUT		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
In Hospital at beginning of year*	490.9	241.6	249.3	86.7	41.9	44.8	20.3	9.3	11.0	8.2	3.9	4.3
1965 Census Estimated Population**[2]/	194.6	95.9	98.8	18.1	8.7	9.3	6.8	3.3	3.5	2.8	1.4	1.4
Incidence for 1965[3]/	252.3	252.6	252.6	479.4	478.7	480.1	300.2	282.0	317.6	289.6	279.7	299.0
1960 Census Population**	179.3	88.3	91.0	16.8	8.1	8.7	6.1	3.0	3.1	2.5	1.2	1.3
Incidence for 1960[3]/	273.8	273.5	274.0	516.3	515.5	517.1	335.2	314.3	355.2	323.6	312.8	334.0
Total in hospital and extramural at beginning of 1965*[4]/	652.5	310.9	341.6	111.6	52.8	52.8	23.2	10.5	12.7	11.2	5.0	6.1
Incidence for 1965[3]/	335.3	324.3	346.1	617.4	603.2	630.8	342.4	316.1	367.4	393.6	363.3	424.1
Incidence for 1960[3]/	363.9	352.0	375.5	665.0	649.6	679.4	382.3	352.4	411.1	453.6	406.2	473.7
Admissions with no prior admission to state and county facilities*	135.5	77.8	57.7	10.2	5.8	4.5	6.0	3.4	2.7	3.9	2.1	1.8
% of total in hospital	27.6	32.2	23.1	11.8	13.8	10.0	29.6	35.9	24.2	47.9	54.3	42.2
Acute and Chronic Brain Syndrome and Alcoholic Addicition*	22.9	19.3	3.6	1.2	1.0	0.2	1.0	0.9	0.1	0.9	0.7	0.2
% with Acute and Chronic Brain Syndrome and Alcoholic Addiction	16.9	24.8	6.3	11.7	17.7	3.9	17.3	27.0	5.1	22.3	31.2	12.0
Schizophrenic Reaction*	23.9	11.5	12.4	1.4	0.6	0.7	1.3	0.6	0.7	0.6	0.3	0.3
% with Schizophrenic Reaction	17.6	14.8	21.5	13.6	11.1	16.8	20.9	18.1	24.5	14.0	12.0	16.4

1/ Taken from Patients in Mental Institutions, 1965, Part II. State and County Hospitals, U. S. Health Service, N.I.M.H., except for study area data which was taken from state data.

2/ Current Population Reports by U. S. Dept. of Commerce, Bureau of the Census, Population Estimates as of July 1, 1965, with male and female ratio same as for 1960.

3/ The incidence is given in terms of 100,000 population. This means incidence for state and county public hospital population only.

4/ The extramural include patients on home leave, absent without leave, and not in hospital.

* In thousands, except for Montana, Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being actual figures.

** In millions, except for Montana, Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being in thousands.

TABLE 13 (Continued): Total population in state and county facilities of the United States and selected states, including Montana, showing incidence ratios, total first admissions, and those for acute and chronic alcoholism and for schizophrenic reaction, by sex, for 1965.[1]/

In State and County Mental Hospitals	RHODE ISLAND			MONTANA			Study Area MONTANA			NORTH DAKOTA		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
In Hospital at beginning of year*	3.2	1.5	1.7	1,535	841	694	180	95	85	1,520	861	659
1965 Census Estimated Population**[2]/	0.9	0.4	0.5	706.0	359.4	346.6	90.4	46.4	44.0	652.0	333.2	318.8
Incidence for 1965[3]/	360.2	350.0	370.0	217.4	234.0	200.2	199.1	204.9	193.1	233.1	258.4	206.7
1960 Census Population**	0.9	0.4	0.4	674.8	343.7	331.0	90.2	46.3	43.9	632.4	323.2	309.2
Incidence for 1960[3]/	373.1	362.8	383.1	227.5	244.7	209.7	199.5	205.3	193.5	240.3	266.4	213.1
Total in hospital and extramural at beginning of 1965*[4]/	4.4	2.1	2.3	1,902	1,031	871	205	106	99	2,696	1,545	1,151
Incidence for 1965[3]/	489.1	472.7	504.9	269.4	286.9	251.3	226.8	228.6	224.9	413.5	463.7	361.0
Incidence for 1960[3]/	507.1	490.2	523.3	281.9	299.9	263.1	227.3	229.1	225.4	426.3	478.0	372.2
Admissions with no prior admission to state and county facilities*	1.1	0.6	0.5	784	510	274	68	43	25	677	483	194
% of total in hospital	34.6	39.5	30.1	51.1	60.6	39.5	37.7	45.3	29.4	44.5	56.1	29.4
Acute and Chronic Brain Syndrome and Alcoholic Addiction	0.3	0.2	0.04	226	193	33	19	17	2	72	67	5
% with Acute and Chronic Brain Syndrome and Alcoholic Addiction	25.2	39.2	8.51	28.8	37.8	12.0	27.9	39.5	8.0	10.6	13.9	2.6
Schizophrenic Reaction*	0.2	0.08	0.08	77	51	26	11	2	9	79	43	36
% with Schizophrenic Reaction	14.2	12.7	16.0	9.8	10.0	9.5	16.2	4.7	36.0	11.7	8.9	18.6

1/ Taken from Patients in Mental Institutions, 1965, Part II. State and County Hospitals, U. S. Health Service, N.I.M.H., except for study area data which was taken from state data.

2/ Current Population Reports by U. S. Dept. of Commerce, Bureau of the Census, Population Estimates as of July 1, 1965, with male and female ratio same as for 1960.

3/ The incidence is given in terms of 100,000 population. This means incidence for state and county public hospital population only.

4/ The extramural include patients on home leave, absent without leave, and not in hospital.

* In thousands, except for Montana, Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being actual figures.

** In millions, except for Montana. Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being in thousands.

TABLE 13 (Continued): Total population in state and county facilities of the United States and selected states, including Montana, showing incidence ratios, total first admissions, and those for acute and chronic alcoholism and for schizophrenic reaction, by sex, for 1965.[1]/

In State and County Mental Hospitals	SOUTH DAKOTA			WYOMING			IDAHO			UTAH		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
In Hospital at beginning of year*	1,672	830	842	695	378	317	755	355	400	580	304	276
1965 Census Estimated Population**[2]/	703.0	355.7	347.3	340.0	173.7	166.3	692.0	350.8	341.2	990.0	495.0	495.0
Incidence for 1965[3]/	237.8	233.3	242.5	204.4	217.6	190.7	109.1	101.2	117.3	58.6	61.4	55.8
1960 Census Population**	680.5	344.3	336.2	330.1	169.0	161.1	667.0	338.0	329.0	890.6	444.9	445.7
Incidence for 1960[3]/	245.9	241.3	250.6	211.2	225.0	196.9	113.2	105.0	121.6	65.1	68.3	61.9
Total in hospital and extramural at beginning of 1965*[4]/	1,686	840	846	939	526	413	1,053	489	564	1,306	677	629
Incidence for 1965[3]/	239.8	236.1	243.6	276.2	302.8	248.4	152.2	139.4	165.3	131.9	136.8	127.1
Incidence for 1960[3]/	247.8	244.0	251.6	284.5	311.2	255.7	157.9	144.7	171.4	146.6	152.2	141.1
Admissions with no prior admission to state and county facilities*	893	557	336	367	247	120	579	290	289	487	292	195
% of total in hospital	53.4	67.1	39.9	52.8	65.3	37.8	76.7	81.7	72.3	84.0	96.1	70.7
Acute & Chronic Brain Syndrome and Alcoholic Addiction*	208	190	18	129	106	23	52	40	12	59	52	7
% with Acute & Chronic Brain Syndrome and Alcoholic Addiction	23.3	34.1	5.4	35.1	42.9	19.2	9.0	13.8	4.2	12.1	17.8	3.6
Schizophrenic Reaction*	94	52	42	28	19	9	134	58	76	88	43	45
% with Schizophrenic Reaction	10.5	9.3	12.5	7.6	7.7	7.5	23.1	20.0	26.3	18.1	14.7	23.1

1/ Taken from Patients in Mental Institutions, 1965, Part II. State and County Hospitals, U. S. Health Service, N.I.M.H., except for study area data which was taken from state data.

2/ Current Population Reports by U. S. Dept. of Commerce, Bureau of the Census, Population Estimates as of July 1, 1965, with male and female ratio same as for 1960.

3/ The incidence is given in terms of 100,000 population. This means incidence for state and county public hospital population only.

4/ The extramural include patients on home leave, absent without leave, and not in hospital.

* In thousands, except for Montana, Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being actual figures.

** In millions, except for Montana, Montana Study Area, North and South Dakota, Wyoming, Idaho and Utah, the entries for these states being in thousands.

Appendix A

Some Information in Regard to Study

A. Criteria for inclusion of patients in the study:

1. Commitment to Montana State Hospital (for the Mentally Ill) at Warm Springs, Montana from one of the following counties: Big Horn, Carbon, Carter, Custer, Dawson, Fallon, Garfield, Golden Valley, McCone, Musselshell, Petroleum, Powder River, Prairie, Richland, Rosebud, Treasure. Wheatland or Wibeaux; This is the 18-County area of study.
2. Discharged from Montana State Hospital between Jan. 1, 1963 and July 1, 1965 and return to the county of commitment for at least 30 days.
3. To be less than 65 years of age at time of discharge, to be non-Indian, to not have a diagnosis of organic disease.
4. To be available for interview for a minimum of two years following discharge.

B. Procedure:

1. Daily intake and discharge records were reviewed initially and monthly at the State Hospital, and individual patient records were reviewed for all patients from the counties of study. Identifying information, hospital record information (including number of hospitalizations), diagnosis and treatment data were secured. The 138 exclusions were determined from these hospital record data.
2. Study patients were visited in their homes as soon as possible after being selected for the study, and every three to four months thereafter for a minimum of two years. Detailed case records were developed for each patient, including historical data of family of origin, work history, health, marital history, social participation history, mobility, and pertinent social and interpersonal relationship facts—a total of 181 patients committed from the counties of study qualified as study patients according to the above criteria. All of them were agreeable to being included in the study, and some information was obtained.
3. Of the 181 discharged patients qualifying for the study, only 113 had (a) a suitable correspondent available for interview or (b) were themselves available for interview over a two year period.
4. A correspondent for purposes of this study was an adult who was in a position of being a significant other for the study patient and was associated with him during the study period. This was most often a spouse, a parent, (commonly a female parent) or a sibling. These patients were classified as Matched PC patients.
5. Of the 181 qualifying patients, 68 either moved away before the end of the study period, had no significant other available to serve as a correspondent, were rehospitalized for such long periods of time as to provide inadequate home and/or community data, or died before the end of the two year period. These patients were classified as Unmatched P patients.

C. Additional procedural facts:

1. Although legal residency in the county was not included in the criteria for selection of study patients, most patients were such legal residents. Although there were some large construction projects in the area (Yellowtail Dam, Interstate and state highways) this population, in spite of its mobility, did not contribute to the case load in any significant way.
2. Although there is a Veterans Administration Neuro-Psychiatric Hospital near the area of study (Sheridan, Wyo.) and contact was made with them, the number of Veterans receiving care there from the area of study, and not qualified for the study by hospitalization in the state hospital, was insignificant. They were not included.
3. A high proportion of study patients were born in Montana. "Back home" to the largest proportion of individuals and patient families not calling Montana "home" was in North Dakota (first) or South Dakota or Nebraska. Their social situations in the Montana area of study were, in a general way, comparable to their previous situation—namely sparsely populated small town type of settlement, limited work opportunit, few services—and a high degree of dependence on extra-ordinary individualism to survive. These are characteristics common to most parts of the sparsely populated Great Plains.

Appendix B

Glossary

1. Anomae: A state of rootlessness or loss of identity with the group, community or society.
2. Community tenure: Length of time patient stayed in the community following treatment in the State Hospital.
3. Dependency Ratio: The proportion of those under 19, or those over 65, or both, as a percent of the working age population age 19 to 65.
4. Familistic: Common to family; like a family.
5. Instrumental Performance: Patient's competence in his work, including in housework after return from hospital.

6. Matched PC patients and households: For 113 patients, where there was a spouse or parent or sibling available, the patients were referred to as Matched Patient Correspondent cases (or Matched PC households or patients.)
7. Median Age: That age splitting the population exactly in half, i.e. 50% are older and 50% are younger than the median age. It is not a simple average age.
8. Mores: Folkways considered good for society.
9. Households or household population: All members of the households in which the patient lived—his spouse and children or parents or other relatives in the household.
10. Sex ratio: The number of men per 100 women.
11. Unmatched P patients and households: The 68 patients who did not have a correspondent or were not available for two years, were referred to as Unmatched P cases (or Unmatched P patients or households.)

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