Social Class Membership and Incidence of Schneiderian Hallucinations and Delusions Among Schizophrenic Patients

by

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SOCIAL CLASS MEMBERSHIP AND INCIDENCE OF SCHNEIDERIAN HALLUCINATIONS AND DELUSIONS AMONG SCHIZOPHRENIC PATIENTS

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ABSTRACT

Incidence of diagnosed schizophrenia relates inversely to social class. An attempt was made to specify this relation by defining social class membership as degree of control over employment conditions and by relating class membership to a set of particular schizophrenic behaviours. This conception can account for similarities between lower-class schizophrenics and middle-class schizophrenics, for the direct correlation of diagnosed manic-depression with socioeconomic status, and for the covariation of psychiatric hospital hospital admissions with unemployment rates. A system for classifying occupations according to degree of control over working conditions was introduced. The schizophrenic behaviours of interest were identified as the experiences that Schneider cites as sufficient for a diagnosis of schizophrenia. Persons who express these symptoms seem to experience their behaviour as controlled by agents other than themselves.

It was predicted that Schneiderian symptoms would be most common among schizophrenic patients who were unemployed or employed in working-class positions prior to admission, non-white, never married, or diagnosed as paranoid type. The information of interest, age, and presence or absence of

parental psychopathology were noted for 191 male schizophrenic patients. Data were compiled from the clinical records of two hospitals. Only first-admission information was used. The author designed criteria for assigning occupations to class groups and for rating occurrence of the symptoms of interest.

Two raters independently and reliably rated occupations and symptoms. 45% of subjects expressed at least one Schneiderian symptom. Logistic regression was used to analyze the data. Schneiderian symptoms were exhibited more frequently by non-white subjects and by subjects diagnosed paranoid subtype. Score assigned to occupation did not relate significantly to occurrence of Schneiderian symptoms. Implications of the latter finding for the argument that particular schizophrenic behaviours can vary with degree of control over social and economic events were discussed.

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INTRODUCTION

The present study aims to establish empirically the tenability of the argument that the inverse relation between social class and diagnosed schizophrenia (c.f., e.g., Hollingshead and Redlich, 1958) may occur in part because members of lower socioeconomic classes are less able to control factors that relate to employment. This relation and the inability to control other significant aspects of one's life can be predictive of particular schizophrenic behaviours.

Previous researchers (Kohn, 1976, 1973, 1968) have evinced the position that conditions associated with lower socioeconomic status promote the genesis of schizophrenic disorder. Kohn attempts to relate the greater incidence of diagnosed schizophrenia among lower socioeconomic groups to lower-class values and child-rearing practices. This conception is inadequate for two reasons. First, it does not account for the lack of perfect concordance for schizophrenia among siblings who are raised in the same family. If Kohn's position was entirely correct, then siblings of schizophrenics would also be schizophrenic, as long as it can be assumed that parents use the same child-rearing practices and instill the same values in raising all of their children. A second shortcoming of the conception that Kohn

proposes is that it does not specify conditions under which particular schizophrenic behaviours will occur.

The present research is guided by the assumption that the variability of a particular behaviour is accounted for most completely when aspects of both persons and situations are specified (c.f. Bowers, 1973). To state that an individual does not control the events in his environment is to state that events in his environment determine his behaviour. The latter statement is a statement about a relation between the individual and his environment. An interactionist perspective is needed if behaviour is to be accounted for in terms of such relations.

The occurrence of a particular behaviour can be said to be controlled by events in the environment when the following conditions occur. (1) The occurrence or non-occurrence of an event is important to a person. (2) The event occurs under certain conditions. (3) A change in the behaviour of the person is not followed by a change in the conditions under which the event occurs or ceases to occur. This formulation is consistent with an "entrapment" hypothesis of the genesis of psychotic behaviour as put forth by Benjamin (1979) and can be construed as a formal definition of entrapment. Inability to contol events within the primary social group can be reliably assessed by structural analysis of social behaviour (SASB) (Benjamin, 1979a, b; 1977). Outside the primary social group, inability to control environ-

mental events can be assessed by social class membership (Wright, 1978).

Wright conceives social class membership in terms of the degree of control that inheres in the occupation in which an individual is employed. The system that he offers differs in this respect from conventional means of assessing socioeconomic status and is used to assign values on an index variable employed in the present study. For these two reasons, the system that Wright offers and the rationale for its use will now be presented in detail.

Two major ways of conceiving and assessing membership in occupational groups can be identified (Ossowski, 1969). One type of schema orders occupations according to the degree to which they differ in respect to certain variables. The Hollingshead Index of Social Position (1958), which is the system most commonly used to assess class membership in studies of the relation between social class and diagnosed schizophrenia, exemplifies this type of measure. In employing the Hollingshead Index, membership in occupational groups is assigned according to the presumed prestige of the occupation and according to the size and economic strength of the firm in which the occupant is employed. Control over occupational conditions is not a determinant of the rank of an occupation when the Hollingshead Index is used.

The other sort of schema that can be used to conceive and assess socioeconomic class membership is constructed on the

premise that the groups which comprise classes relate specifically to each other (ibid.). Since the proposed theory addresses the problem of schizophrenia and social class in terms of relations between individuals and their environments, a schema of this latter type is germane to its purpose. The system that Wright offers is based on a conception that takes into account the relations between classes and the relation between an individual and his conditions of work. Wright specifically conceives class membership in terms of the degree to which an occupant controls the conditions of his work. The system that Wright proposes thus meets the specifications of a system for assigning class membership that are implied by the theory that is to be tentatively tested.

According to Wright, control can be total, partial, minimal, or nil. These different degrees of control interact with certain aspects of working conditions so as to determine membership in a given class. The aspects of working conditions that pertain to class membership are: (1) control over investment and resources, (2) control over the physical means of production, (3) control over the labour power of others, and (4) legal ownership. The actual aspects of occupation that correspond to degrees of control over each of these aspects are displayed in Table 1. The categories into which occupations fall when they are classified according to these variables are displayed in Table 2.

Table 1

Hierarchical Levels within Ownership Relations

	Relations of Economic Ownership (control over what is produced)	Relations of Possession (control over how things are produced) Control of means of Production	Control over Labour Power	Legal Ownership
Full Control	Control over the overall investment and accumulation process	Control over the entire apparatus of production	Control over the entire supervisory hierarchy	Sufficient stock to ensure influence on investments and accumulation.
Partial Control	Participation in decisions concerning either subunits of the total production process or partial aspects of the entire investment process	Control over one segment of the total production process	Control over one segment of the supvervisory hierarchy	Sufficient stock to ensure financial stake in profits of corporation (stock is a significant part of income).
Minimal Control	Control over what one produces in one's immediate labour process	Control over one's immediate instruments of production; over how one does one's own job	Control over the direct producers, over immediate subordinates but not part of the hierarchy as such.	Marginal stock ownership (stock is an insignificant part of income
No Control	Complete exclusion from participation in decisions about what to produce	Negligible control over any aspect of the means of production	No ability to invoke sanctions on other workers.	No stock ownership

TABLE 2

Class Membership Based on Control of Aspects of Occupation

	Economic Ownership: Control over Investments, Resources	Control over the Physical Means of Production	Control over the Labour Power of Others	Sale of One's Own Labour Power
Class 1				
Proprietors of large concerns	+ (full control)	+	+	+
Top Corporate executives	+	+	+	minimal
(Intermediate between Class 1 and Class 2)				
Small Employers	+	+	minimal	-
Class 2				
Proprietors without employees	+	+	- (none)	-
(Intermediate between Class 2 and Class 3)				
Semi-autonomous employees	minimal	minimal	-	+
Class 3				
Working class	-	-	-	-
(Intermediate between Class 1 and Class 3)				
Top managers	partial	+	+	partial
Middle managers	minimal	partial	partial	+
Technocrats	minimal to none	minimal	minimal	+
Foremen/supervisors	-	-	minimal	+
Professionals who are not self-employed	minimal to none	partial	minimal	+

According to these criteria, proprietors of large concerns that issue no stock, executives who own a controlling interest in corporations, and owners of commercial real estate who are not employed by others are members of one class. Bank presidents and corporate executives of the highest rank exemplify members of this class (Class 1).

Those who control investments and resources along with the physical means of production in their place of employment but do not control the labour of others are members of a second class. Owners of small businesses, self-employed professionals and craftsmen who are not employers exemplify members of this class (Class 2).

Workers who are supervised but neither own investments or resources, control the means of production, nor supervise others are members of a third class, the working class (Class 3).

These three classes do not account for all occupations. Wright also classifies occupations into marginal class positions between the first and second, first and third, and second and third classes. Small employers are like members of Class 2, except that they exercise minimal control over the labour of others: in this way they are like members of Class 1. A farmer who hires one or two hands or a grocer who employs a cashier exemplify occupations in this marginal category, group 1-2.

Semi-autonomous employees exercise relatively high degrees of control over their immediate labour process -- they can, for instance, determine the pace of their work or the length of their day. They may also exercise minimal control over investments and resources. For instance, a university research professor may be given laboratory space or be assured of funding for a substantial research project. Such employees do not hire or closely supervise others, though, and others pay them salaries or wages. Many white-collar technical employees and some highly-skilled craftsmen exemplify members of this group, which has some characteristics of Class 2 and some of Class 3.

Four types of occupations comprise a third group that is like Class 1 in some respects and like Class 3 in others. Top managers, middle managers, technocrats, and foremen and line supervisors are members of this group. Top managers exercise partial control over investments and resources of corporations and receive part of their income from investment as well as part from wages or salaries. They exercise considerable control over production apparatus and over the labour of others within the corporate hierarchy. Middle managers receive income only from wages or salaries but exercise some control over the production process. Technocrats (e.g., the head of a medical technology team, head of a computer operations team) exercise minimal control over what they produce and how they produce it but do not command any

part of the production process. Finally, foremen and line supervisors are paid wages and their power is restricted to minimal control over immediate subordinates within the confines of administrative rules.

Wright assigns occupations to these classes on the basis of data that were compiled by the University of Michigan Survey Research Centre (1969) on working conditions in the United States. These data are descriptions of (1) the occupation of respondents and the industries in which they work; (2) whether or not respondents supervise subordinates on the job; and (3) whether or not respondents are self-employed, and if so, the number of employees they hire. Class membership can be assigned by means of criteria that yield high estimates or by criteria that yield low estimates of the numbers of occupations and employees that comprise class groups (see Table 3). Major executives and proprietors (Class 1) comprise 1-2% of the economically active population. Professionals, technicians, and managers who say they supervise people on the job are distinguished from supervisors and line foremen on the basis of job titles and comprise 12% of the economically active population. Bottom managers, foremen and line supervisors do not include operatives and labourers and can be estimated from their job titles to comprise 18-23% of the population. These two groups together occupy the marginal position between Class 1 and Class 3. Entrepreneurs without employees (Class 2) comprise

Table 3

Criteria Used in High and Low Estimates for Sizes of Classes

	High Estimate	Low Estimate
Semi-autonomous Employees	All non-supervisory employees who score high on both questions concerning subjective autonomy.*	Those non-supervisory employees who score high on the subjective autonomy questions and whose occupation is classified as having a complex relation to data and things by DOT classification.**
Small Employers	Less than 50 workers	Less than 10 workers
Managers/Supervisors Top/Middle Managers	Professionals, technicians and managers (by occupational title) who say they supervise people on their job.	
Bottom Managers/Supervisors	All supervisors not classified as top/middle managers	Excludes operatives and labourers
Workers	All non-supervisory employees plus semi-autonomous employees whose occupations are classified as non-complex by the DOT, plus supervisors whose supervisors whose occupations are operatives or labourers.	Non-supervisory employees who score low on either subjective autonomy question.

* Jobs which the respondent claims are characterized "a lot" by both of the following descriptions: (1) "a job that allows a lot of freedom as to how you work";and (2) "a job that allows you to make a lot of decisions on your own".

**The Dictionary of Occupational Titles codes occupations in terms of their relationship to data and to things in the following way:
relationship to things: 0. setting up; 1. precision working; 2. operating-controlling; 3. driving-operating; 4. manipulating; 5. tending; 6. feeding-offbearing; 7. handling; 8. no significant relationship to things.

relationship to data: 0. synthesizing; 1. coordinating; 2. analysing; 3. compiling; 4. computing; 5. copying; 6. comparing; 7-8. no significant relationship to data.

An individual whose occupation scored 0-2 on data and 0-2 or 8 on things, or who scored 0-2 on things and 7-8 on data, was classified as having a "complex" job.

4.5% of the economically active population. Small employers, the group intermediate between Class 1 and Class 2, comprise 6-7% of the population. Semi-autonomous employees were identified primarily by their affirmation of characterizations of their jobs as "a job that allows you to make a lot of decisions on your own" and as "a job that allows you a lot of freedom as to how you do your work." Occupations within this group are also classified by the Dictionary of Occupational Titles as having a complex relation to data ("synthesizing, coordinating, analysing, comparing") or to things ("setting up, precision working, operating and controlling") . Members of this marginal group between Class 2 and Class 3 are estimated to comprise 5-11% of the population. All non-supervisory employees, semi-autonomous employees whose occupations do not meet the two criteria above, and supervisors whose occupations are operatives or labourers are classified as members of Class 3, which constitues an estimated 41-54% of the economically active population.

When occupations are classified according to the system devised by Wright, they comprise categories that differ in composition from those that are yielded by the Hollingshead Index of Social Position (see Table 4). It thus might be expected that the correlation between diagnosed schizophrenia and social class as assessed by one system exceeds the correlation between diagnosed schizophrenia and social class as assessed by the other system.

Table 4

Wright (Control)	Hollingshead (Value and Size)
Class 1	Class 1
Executives of large concerns Proprietors of large concerns	Executives of large concerns Proprietors of large concerns Major professionals*
(Intermediate between Class 1 and Class 2)	Class 2
Small employers (includes professionals who are employers)	Managers of medium-sized concerns* Proprietors of medium-sized concerns Lesser professionals*
Class 2	Class 3
Proprietors who are not employers	Owners of small independent businesses Administrative personnel of large concerns* Semi-professionals* Clerical workers*
(Intermediate between Class 2 and Class 3)	
Semi-autonomous employees	
Class 3	Class 4
Clerical and sales workers Operatives Labourers	Technicians Skilled workers (Owners of little businesses)*
(Intermediate between Class 1 and Class 3)	Class 5
Top managers Middle managers Technocrats Foremen/line supervisors Professionals who are not self-employed	(Semi-skilled workers) Unskilled workers

*Indicates occupational group assigned to a different class using criteria devised by Wright.

It is evident that the system that Wright has devised for the assignment of occupations to social classes merits use in an exploratory test of the thesis that certain schizophrenic behaviours are related to an historical inability to control important aspects of the environment. Wright explicitly conceives class membership in terms of the degree of control that an occupant has over his conditions of work. Consistent with an interactionist view, Wright argues that class membership can be regarded only in terms of relations between occupational groups and in terms of the relation of an occupant to his work environment. The schema is predicated on a theory of society that differs from that on which conventional class schemata are based. Finally, it yields objective criteria that, when applied, yield class groups that differ in composition from those that are yielded by the system that has conventionally been used in investigating the relation between social class and diagnosed schizophrenia.

Any inquiry into the relation between social class and diagnosed schizophrenia must address the issues of the validity of the use of the terms "schizophrenia" and "schizophrenic". The position from which the present inquiry proceeds is that these terms are used publicly in clinical practice and that important consequences, such as hospitalization and prescription of anti-psychotic medication, ensue when they are used to describe an individual. Given this

state of affairs, it is useful to identify the conditions under which the terms are used and to identify behaviours to which they consistently refer. Evidence that pertains to the use of certain psychodiagnostic methods such as the Inpatient Multidimensional Psychiatric Scale (IMPS) (cf., for example, Lorr, Klatt, McNair, Hrychak, and Varsany, 1966) implies that certain behaviours are consistently identified as schizophrenic. This particular scale is administered without reference to patient history or sociodemographic data. It can thus be concluded that an unbiased diagnosis of schizophrenia is possible. In actual practice, it is evident that lower-class persons sometimes are designated as psychotic when they exhibit behaviours that are exhibited by middle and upper-class patients who are designated and neurotic (Lee and Temerlin, 1970). However, there is evidence to indicate that this trend may no longer be so pronounced as it once was (Dinardo, 1975).

If a set of behaviours that are designated schizophrenic is to be used as the criterion variable in the proposed study, it must meet certain conditions that are posed by the design of the study and on the arguments on which it is predicated. First, it must consistently provoke a diagnosis of schizophrenia. Secondly, it must vary as a function of observable conditions. Thirdly, hospital personnel must accord the behaviours enough significance so as to reliably note their occurrence in the medical record of a person who

is diagnosed as schizophrenic. Fourthly, the behaviour of interest must plausibly relate to the hypothesis that schizophrenic behaviour is a function of the degree to which a person has historically controlled the events in his environment.

The first condition is dictated by a need to ensure that the behaviour to be designated as the criterion variable is not incidental to a diagnosis of schizophrenia. If this criterion is met, the behaviour of interest will be a valid (albeit not exclusive) index of disorder. The second condition is dictated by the assumption that people exercise greater control over certain circumstances than over others and that the degree to which they exhibit certain schizophrenic behaviours is a function of that variable. The third condition is dictated by the design of the study, in which hospital records are used to assess the behaviour of interest. The use of hospital records as sources of data, although problematic, poses several advantages over the interviewing of patients. It allows compilation of more data over shorter periods of time. Obtaining data from patient interviews poses problems of selection. For instance, some patients decline to be interviewed; patients who have been admitted involuntarily cannot be interviewed without the consent of the legal guardian; only patients who are hospitalized at the time of the study are interviewed, so that the sample becomes biased towards the inclusion of patients

who are hospitalized for long periods. The fourth condition guards against criticism that any relation between schizophrenic behaviour and degree of control is artifactual.

Global devices such as the IMPS do not assess the occurrence of a given behaviour at a given time; they thus do not meet the second condition cited as necessary for a criterion variable in the proposed study. However, certain kinds of hallucinations or delusions can meet this criterion. An individual may more probably report hallucinations or delusions under some circumstances than under others. The content of reported hallucinations may differ at different times, and different individuals report different hallucinations and delusions. Thus, the content and occurrence of reported hallucinations and delusions can vary as a function of certain observable conditions.

One set of hallucinations and delusions is of focal interest in the diagnosis of schizophrenia. This group of behaviours is described by the first-rank criteria for a diagnosis of schizophrenia as cited by Schneider (1959). The behaviours in this group are neither unique nor ubiquitous to patients who have been diagnosed as schizophrenic according to North American convention (Carpenter and Strauss, 1973; Mellor, 1970). However, the results of the pilot study conducted in nine countries by the World Health Organization (1973) indicate that these behaviours do significantly distinguish schizophrenics as a group. Average in-

ter-rater reliability for the 11 first-rank criteria is .80 (range= .55 - .97). Most important for the purpose of the present study, analysis of the results of the investigation indicates that persons who report one or more of the behaviours described by the criteria are diagnosed schizophrenic with probability of .93 to .97 (Carpenter and Strauss, op. cit.). It thus is evident that the report of the behaviours described by these criteria is very likely to provoke a diagnosis of schizophrenia.

The behaviours under discussion occur among schizophrenics to a statistically significant degree, but their occurrence may also have normative significance. When a person reports a hallucination or delusion, others are alarmed, and hospitalization may be imminent. These considerations suggest that if a patient reports an experience of a a hallucination or delusion to a hospital staff member, it is likely that the occurrence will be recorded.

The hallucinations and delusions that are described by the first-rank criteria for a diagnosis of schizophrenia as proposed by Schneider are listed below.

1. Experiencing one's thoughts as imposed by some external force (thoughts controlled).
2. Belief that one is made to want things that one does not want oneself (controlled feelings; controlled impulses).

3. Belief that some force other than oneself makes one do or say things that one does not intend, as though one did not have a will of one's own (controlled volitions).
4. Belief that some other agent makes one's own movements and actions without one's intention (controlled actions).
5. Experiencing thoughts, as they occur, as being broadcast from one's head into the external world, so that others can hear them (thought broadcasting).
6. Experiencing thoughts, which are not one's own, being inserted into one's mind (other than by God) (thought insertion).
7. Belief that thoughts have been removed from one's head, resulting in a diminished number of thoughts (thought withdrawal).
8. Auditory hallucinations in which either a voice keeps up a running commentary on the individual's behaviours or thoughts as they occur, or in which two or more voices converse with each other.

For convenience, these hallucinations and delusions will be referred to as the Schneiderian symptoms. Schneider maintains that these first-rank symptoms have "undisputed precedence when it comes to allocation of the individual case." An exposition of the theoretical and methodological tenets on which this assumption is based will now be attempted.

Kurt Schneider was an exponent of what has come to be called the phenomenological school of psychiatric thought. This group was inspired by Karl Jaspers, who first practised psychiatry before concerning himself more directly with philosophy. Exponents of the phenomenological school advocate meticulous description and analysis of the experiences of the subject as the subject himself expresses them. This view is intended to contrast with that of the psychodynamic school, which purportedly makes use of such experiences only so far as they point to unconscious processes.

Schneider demarcates psychotic disorders (including schizophrenia) from those that he calls "abmormal variations in psychic life." He states that all psychological disorders that proceed from "acute, deeply moving experience or its long-drawn out effects" are to be included in this latter category. He supposes that psychosis necessarily involves an organic component.

> On these lines, therefore, we postulate a somatic origin for the psychoses, although we do not always know what it is.

The supposition that psychosis is never prompted by social or historical events but always involves some somatic component can be termed an etiological tenet of the phenomenological school.

Schneider recommends that a diagnosis of schizophrenia be based on a description of the experiences of the patient.

> We should, however, scrutinize most carefully what the patients tell us themselves of their experiences and, if possible, try to establish them all

> reliably. Accurate diagnosis can only take place if our data is certain, and the question must always be answered whether what we have managed to glean really relates to what the patient has in fact experienced.

It should be emphasized, though, that Schneider takes an interest in the phenomenology of schizophrenia only insofar as he maintains that it indicates the presence of a morbid somatic condition.

> Psychosis is the result of a known or supposed illness, whereas psychic reaction is an emotional response to an experience. To diagnose a psychosis, the formal psychic disturbances which point to the illness are alone relevant. The contribution made by the personality itself and its history is unimportant for this purpose; so, therefore, is thought-content, and all the exterior features of character and psychic reaction to be found in the total picture of the psychosis.

Schneider posits that the experiences of the patient are the data on which a diagnosis of schizohrenia should be based. Accordingly, he identifies a set of experiences -- the hallucinations and delusions that have been listed -- that purportedly are cardinal symptoms of the disorder. He then argues that the behaviours that he cites are important only insofar as they allegedly indicate the presence of a morbid condition that has not been identified. He argues that this hypothetical condition occurs independently of aspects of personality and personal history. It thus can be seen that Schneider appeals to phenomenology in the diagnosis of schizophrenia only as an attempt to evince his position that only somatic states cause schizophrenia and other psychoses.

It can be supposed that Schneider would not argue that the occurrence of the experiences which he calls first-rank symptoms of schizophrenia could be predicted from the occurrence of certain social or historical events. Such an argument would run counter to his view that the experiences in question are indicators of a morbid organic condition. An opposing view is the argument that the behvaiours that he posits as being sufficient for a diagnosis of schizophrenia can be construed as relating to an historical inability to control social and economic events. This view will now be presented briefly.

Thought alienation, or the experience that one's thoughts are imposed by some external force, and thought insertion, or the experience that thoughts are being put into one's mind, suggest that someone perceives that he is unable to control the origin of his thoughts. The experiences of thought broadcasting, thought withdrawal, and of hearing voices comment or converse on one's behaviour suggest that someone perceives that he is unable to control access to his thoughts and experiences. The remaining first-rank symptoms suggest that someone perceives that other persons or forces determine his feelings, impulses, or actions. All the experiences that Schneider posits as being cardinal symptoms of schizophrenia can be construed as indicators that someone experiences his behaviour as being controlled by factors other than himself.

The behaviours that Schneider designates as first-rank symptoms of schizophrenia meet the following conditions for use as the criterion variable of the present study. (1) They significantly characterize schizophrenic populations. (2) They can vary as a function of observable conditions. (3) Diagnosticians regard them as noteworthy. (4) It can be plausibly argued that they relate to the degree to which a person has historically been able to control important events in his environment.

The index variable of interest in the present study is social class membership as designated by the system offered by Wright. The criterion variable is the incidence of one or more of the behaviours that are described by the first-rank criteria for a diagnosis of schizophrenia proposed by Schneider. It is predicted that schizophrenic patients who have never been employed or who were members of working-class occupational groups (Class 1) prior to their first psychiatric admission exhibit Schneiderian behaviour to a greater degree than do schizophrenic patients who were members of other classes prior to their first psychiatric admission.

Some suggestive evidence for the hypothesis of the proposed study can now be presented. Myers and Roberts (1959) published the results of a study that was conducted in conjunction with that conducted by Hollingshead and Redlich. The results of that study merit examination because they

provide detailed information about the intrafamilial and extrafamilial conditions associated with the genesis of neurosis and schizophrenia in both middle-class and lower-class families. The extrafamilial conditions associated with the genesis of schizophrenia in lower-class and middle-class families are of primary interest to the purpose of the present study.

Both lower-class schizophrenics and lower-class neurotics came from families where the father had not been steadily employed. The patients were pervasively concerned about money during childhood and were extremely worried about their finances as adults. They were sporadically employed in unskilled or semi- skilled occupations and changed jobs frequently but could not earn more money. They disliked their jobs and felt exploited.

Lower-class schizophrenics experienced economic conditions that were even harsher than those experienced by lower-class neurotics. They began to work full-time as soon as they were legally able to leave school and they contributed all of their income toward the support of their families. Lower-class neurotics, in contrast, tended to remain in school and to spend the money they earned as they pleased. The families of both neurotic and schizophrenic patients distrusted the clergy and were alienated from community institutions. Schizophrenic patients frequently failed in school and resented the way that their teachers treated

them: "convinced that society was against them, they believed that there was little they could do about it". Few lower-class schizophrenics belonged to gangs.

These findings yield the following inference. Both lower-class schizophrenics and lower-class neurotics lacked control over the immediate conditions of their occupations, and members of both groups were alienated from societal institutions. However, neurotics had recourse to ways of coping with these stressors (e.g., ability to spend their own money, membership in gangs) where schizophrenics had none. In contrast, schizophrenics could neither change nor escape from the adverse conditions to which they were exposed.

Myers and Roberts found the following differences between middle-class neurotics and middle-class schizophrenics. Middle-class schizophrenics were more upwardly mobile than were middle-class neurotics, who in turn were more upwardly mobile than middle- class non-patients. This trend is contrary to the hypothesis that schizophrenics lose social status as a consequence of insidious degeneration due to a genetic disorder. Middle-class schizophrenics had exceedingly high aspirations in comparison to their siblings and to middle-class neurotics. However, parents of schizophrenics were less able to offer financial assistance to their children than were parents of neurotics. Education was regarded as the sole means of attaining greater social status. Even though schizophrenics associated almost exclusively with

classmates of greater status, they were not accepted by their reference group.

The aspirations and resources of middle-class schizophrenics were thus more discrepant than the aspirations and resources of middle-class neurotics. Myers and Roberts concluded that middle-class schizophrenics are exposed to the same sorts of conditions to which lower-class patients, regardless of diagnosis, are exposed. Even though it was found that the concerns of middle-class schizophrenics had borne on social status while those of working-class patients had borne on economic survival and alienation from community institutions, these two groups are similar in one respect. Neither middle-class schizophrenics, lower-class schizophrenics, nor lower-class neurotics were able to control the factors that bore on their concerns. Even though middle-class schizophrenics were more upwardly mobile than other middle-class students, their educational aspirations were thwarted by factors that they could not control. Lower-class schizophrenics were trapped in jobs that did not offer the pay they sought and were unable to find compensations in other settings. Lower-class neurotics, lower- class schizophrenics, and middle-class schizophrenics were unable to control the crucial aspects of their lives.

Brenner (1973), a colleague of Hollingshead, used a battery of statistical techniques to find that rates and fluctuations of employment predicted rates and fluctuations of

admissions to mental hospitals in the state of New York. Declines in employment rates predicted increases in mental hospital admissions so accurately that Brenner concluded that (1) they have been the single most important source of fluctuation in mental hospital admissions, and (2) for certain segments of the society, no major factor other than economic instability affects admission rates. These findings bear closely on the thesis of the present study for the following three reasons. First, they indicate that events in the economic sphere bear crucially on the incidence of psychological disorder. Secondly, since individuals cannot influence major economic trends, these findings indicate that an inability to control events in the economic sphere may be closely related to the occurrence of psychological disorder. Thirdly, when the detailed findings of the Brenner study are examined in conjunction with findings of seemingly unrelated studies, the relation of historical lack of control over economic events and the occurrence of schizophrenic behaviour as opposed to other forms of psychological disorder among lower-class groups is discerned more easily.

Examination of the relation between employment and admissions for specific psychiatric disorders reveals that only admissions for manic-depressive disorder are more sensitive to economic change than are admissions for schizophrenia. However, among males, the relation between admission for schizophrenic disorder and economic downturn is more consis-

tent as education decreases. The relation between economic downturn and and admissions for manic-depressive disorder among males is equally consistent across groups.

It can also be noted that persons of high socioeconomic status who are admitted to mental hospitals are more likely to be diagnosed as manic-depressive than as schizophrenic (Faris and Dunham, 1960, 1939; Frumkin, 1955; Rose and Stub, 1955). When this finding is considered with those above, it suggests the following conclusions. (1) Responsivity to economic loss is related more directly to class for persons admitted for schizophrenic disorder than for persons who are admitted for manic-depressive disorder. (2) The genesis of manic-depressive disorder is more consistently related to economic downturn than is the genesis of schizophrenic disorder, but it also seems to be affected by factors associated with upper-class conditions.

If the incidence of diagnosed schizophrenia is specifically related to inability to control economic conditions, it would be expected that hospital admissions for schizophrenia would increase among members of the upper class and middle class as well as among members of the working class during an economic downturn. This expectation is contravened, however, by the following findings. (1) Even though hospital admissions among the middle and upper classes increase during economic downturn, these admissions tend to be for manic-depressive disorder. (2) Moreover, the in-

cidence of admissions for manic-depressive disorder is more consistently related to economic trends than is the incidence of admissions for schizophrenia.

The two findings cited above, in addition to the finding that diagnosed manic-depressive disorder increases as social class increases, while incidence of diagnosed schizophrenia decreases as social class increases, can be accounted for as follows. Since it is likely that the genesis of any sort of psychological disorder is affected by factors that the afflicted person cannot control, why is lack of control particularly implicated in the genesis of schizophrenic behaviour? According to the proposed theory, lack of control over environmental events is specifically related to the genesis of schizophrenic behaviour when two other conditions occur. The first condition pertains to the number of life aspects that a person has been unable to control and to the length of time that he has not been able to control them. If schizophrenic behaviour is to occur, this relation must he long-standing, perhaps to the degree that the person has never significantly influenced his environment. The relation must be pervasive, such that at some time, the individual does not control any of the aspects of his life that are important to him. Secondly, if lack of control over important environmental events is to be associated with schizophrenic behaviour, the person in question must perceive that he does not control the life events of concern. These two arguments are supported by the following findings.

In a replication of a previous study, Harrow and Ferrante (1969) administered the Rotter Internal-External Locus of Control Scale to three patient groups: depressives, manics, and schizophrenics. When the test was administered before treatment began, the following results were obtained. (1) Schizophrenics scored in a more external direction than did all non-schizophrenic patients and normal standardization samples. (2) A small group of manics received a mean score that was significantly more internal than the mean scores of other patient groups and of the normal standardization samples. The test was administered again six weeks after treatment began, and the following results were obtained. (1) The high external scores of schizophrenic patients did not change. (2) Scores of patients who were diagnosed depressed shifted so as to be more internal at the second administration. (3) Scores of patients who had been diagnosed as manic shifted so as to be more external at the second administration.

If the high external scores of schizophrenics are not attributable to severity of disorder as opposed to type of disorder, then these results have the following implications in terms of the proposed theory. (1) Schizophrenics attribute events to factors other than themselves, and they do so to a greater degree than do members of other groups. (2) Although depressives tend to attribute events to factors other than themselves, this tendency is less marked and more

tractable than it is for schizophrenics. The implication is that schizophrenics have acquired a perception that they cannot control events in their environment, and that this perception is based on the fact that they historically have not been able to control such events. This interpretation is consistent with the finding that schizophrenics with a good premorbid history tend to perceive that they control events in their lives, while schizophrneics with a poor premorbid history tend to perceive that events in their lives are controlled by external factors (Lottman and DeWolfe, 1972).

The perceptions of manics and depressives can be accounted for in terms of the proposed theory as follows. Depressives transiently perceive that they do not control their behaviour because they have temporarily lost control over events that they had formerly controlled to some degree. A temporary loss of control precipitated their perception. The initial inappropriate internal orientation of manic patients suggests that, prior to the onset of the disorder, they accurately perceived that they controlled events that were important to them. This perception continued after the onset of disorder even though, with the onset of disorder, they ceased to control these events, so that their perception was inaccurate. It can be noted that this formulation implies that differences between perceptions of locus of control do not suffice to account for differences in disor-

dered behaviour: the degree to which a person actually has controlled events in his life must also be considered.

The formulation above can be used to account for the finding that the incidence of diagnosed manic-depressive disorder increases as social class increases but that the incidence of diagnosed schizophrenia increases as social class decreases. It can be argued that loss of control by persons in the middle and upper classes, who historically have been able to control some of the events in their environment, precipitates either manic or depressive behaviour, depending on the perceptions of the person. On other hand, schizophrenic behaviour occurs when a person who has controlled almost no important aspect of his life loses control over the few remaining aspects that are important to him. Thus, during an economic downturn, which constitutes a set of events that no individual can control, working class people, who already have little control over their environment, tend to exhibit schizophrenic behaviour. College-educated persons, who are members of the upper and middle classes, are disposed to exhibit affective disorder during economic downturn, because historically they have been able to control events in their lives to a greater degree than have members of the working class.

Hypotheses

1. The incidence of Schneiderian symptoms among patients who were never employed or who were members of working-class occupational groups as defined by Wright will significantly exceed the incidence of Schneiderian symptoms among patients who were members of middle-class or upper-class occupational groups prior to their first admission to hospital with a diagnosis of schizophrenia when race, presence of parental psychopathology, and years of education are held constant.
2. When presence of parental psychopathology and years of education are held constant, the incidence of Schneiderian symptoms among non-white patients will be greater than that among white patients. Race will interact with occupation such that the incidence of Schneiderian symptoms will be greatest among non-white patients who had been unemployed or members of the working class prior to their first admission.
3. Incidence of Schneiderian symptoms will increase as years of education decreases, when occupation, race, and presence of parental psychopathology are held constant.
4. When presence of parental psychopathology is held constant, the incidence of Schniederian symptoms will be greater among patients who had never been married than among those who had been married prior to admission.

5. The incidence of Schneiderian symptoms will be greater among paranoid schizophrenics than among other schizophrenics.

METHOD

Subjects

Data for the study were compiled from the clinical records of 200 current and former patients of the Grace General Hospital in Winnipeg, Manitoba and Selkirk Mental Health Centre in Selkirk, Manitoba; 100 subjects were selected from each hospital. All subjects had been diagnosed schizophrenic. Only clinical data at first admission for schizophrenia were used in the study. All occupations held prior to admission, race, years of education, marital status, recorded occurrence of parental psychopathology, diagnostic subtype, and age were recorded; parental occupations were also recorded where such information was available. All records of the content and occurrence of hallucinations and delusions were copied verbatim or paraphrased only to simplify syntax.

The names of subjects were not recorded. Clinical records were examined only after the consent of research and administration committees at both hospitals was obtained. The researcher examined clinical records under the supervision of members of medical records staff. These measures to safeguard the confidentiality of records accord with the APA Ethical Principles in the Conduct of Research with Human Participants, the provisions of the Manitoba Mental Health

Act, and the guidelines established by the Research Ethics Committee of the University of Manitoba Department of Psychology.

Exclusion Criteria and Information Used

Organic disorders. Patients with histories of prolonged abuse of alcohol or other drugs, patients with a diagnosis of toxic psychosis, and patients with other diagnoses of organic brain disorder were excluded from the sample. Cases where a patient was described as experiencing hallucinations or delusions but where the content of hallucinations and delusions was not elaborated were excluded from the sample.

Males Only. The proportion of males who are or have been employed full-time is greater than the proportion of females who are or have been employed full-time; as a group, the employment status of females is more variable than that of males. If there is a statistical relation between certain schizophrenic symptoms and membership in occupations with certain aspects, it can be expected that this relation will be more pronounced among males than among females. For this reason, only the records of male schizophrenic patients were examined.

Use of First Admission Data. It is likely that anti-psychotic medication attenuates occurrence of the Schneiderian

behaviours and that other forms of treatment may also affect the occurrence of the behaviours. These considerations imply that hallucinations and delusions at first admission comprise the only relevant symptomatology for purposes of the present study.

Race. Data on race were compiled to permit assessment of the degree to which it might covary and interact with occupational group membership in accounting for variability in the occurrence of the Schneiderian behaviours. Due to the structure of Canadian society, it might be predicted that as a whole and within occupational groups, Native and Metis persons tend to display the Schneiderian behaviours to a greater degree than do Canadians of non-Native lineage.

Education. Years of education tends to covary with class membership as defined by occupation, such that members of lower-class occupational groups tend to have fewer years of education than do members of middle-class and upper-class occupational groups. It thus was predicted that patients with few years of education would display Schneiderian behaviours to a greater degree than patients with many years of education.

Social History. Schizophrenic patients who were married prior to admission tend to have a more favourable prognosis than do schizophrenic patients who never were married before admission (Phillips, 1953). It might thus be expected that

schizophrenics who never were married before admission would tend to exhibit Schneiderian symptoms, irrespective of their occupational status prior to admission. A history of parental psychopathology might also be associated with the occurence of Schneiderian symptoms, independent of occupational status.

Diagnostic Subtype. Some researchers have concluded that paranoid schizophrenics tend to be more intelligent, to have better premorbid histories, and to have more favourable prognoses than do other schizophrenics (Goldstein, 1970). Moreover, paranoid schizophrenics display pronounced delusional ideation. A diagnosis of paranoid schizophrenia thus may correlate with class membership (better premorbid adjustment, more years of education) or with type of symptomatology (greater incidence of Schneiderian symptoms in conjunction with other delusional ideation). The diagnostic subtype assigned to patients was noted for this reason.

Materials

The researcher devised criteria for designating subjects as unemployed and for classifying the occupations of employed subjects according to the Hollingshead Index of Social Position and the system proposed by Wright. Subjects who met any of the following criteria were designated as unemployed.

1. Never employed.

2. Unemployed for the three months preceding first admission for schizophrenia.
3. Unemployed for "a long period of time".
4. "Unemployed" (no elaboration).
5. Student without other employment.

The following criteria were devised to classify occupations using the Hollingshead Index of Social Position. These criteria are stated in abbreviated form below; detailed criteria are cited in Appendix A.

1. Class 5 (Lower Class): Sporadically employed people, unskilled labourers, semi-skilled workers, apprentices, personal service workers. (Examples: day labourer, railway section man, trapper, porter).
2. Class 4 (Working Class): Occupations that involve work with complex equipment, craftsmen and technicians, operators of heavy equipment, foremn, military personnel who are not officers. (Examples: welder, cabinet maker, locomotive operator).
3. Class 3 (Middle Class): Clerical workers, technicians who work in offices, low-level civil servants, low-level administrative personnel, owners of small businesses, owners of small farms, low-ranking military officers. (Examples: bank teller, draftsman, tax form processor, grocery store manager, restaurant owner).

4. Class 2 (Upper Middle Class): Business managers in large firms who execute but do not formulate policy, proprietors of medium- sized concerns, lesser professionals. (Examples: district sales manager, owner of local retail store, public school teacher).
5. Class 1 (Upper Class): Executives of large concerns, high- ranking public officials, proprietors of large concerns, major professionals. (Examples: treasurer of large corporation, Member of Parliament, newspaper publisher, physician).

The following criteria were used to classify occupations according to the system proposed by Wright. Detailed criteria are listed in Appendix B.

1. Class 3: Labourers, operators of simple equipment, clerical workers, service workers, members of military or police forces who are not officers, apprentices, "lower class" (unspecified). (Examples: construction worker, sewing machine operator, sales clerk, waiter).
2. Class 2-3: People who work with complex machinery, craftsmen and technicians, white-collar coordinators, technical employees who are not supervisors. (Examples: tool and die maker, plumber, computer operator).
3. Class 1-3: Managers, technocrats, professionals who are not self-employed, foremen and supervisors, po-

lice and military officers. (Examples: sales manager, mechanical engineer, actor, teacher).

4. Class 2: Entrepreneurs without employees. (Examples: farmer, author, trapper).
5. Class 1-2: Small employers. (Examples: grocer, lawyer in law firm, restaurant owner).
6. Class 1: Proprietors and executives of firms that employ more than 10 people. (Examples: department store owner, president of large corporation).

Another occupational category, "marginally employed", was added to those proposed by Wright and incorporated as a category for assigning scores according to the Wright scale. Subjects were considered to be marginally employed if they met any of the following criteria:

1. employed part-time (includes casual labourers).
2. "sporadically employed".
3. employed, but not employed in the same position for more than six months.
4. retired.

The "marginally employed"category was not included as part of the Hollingshead Index. According to that scale, retired persons were classified according to the occupations that they had formerly held. Sporadically employed workers were assigned to Class 5 (Lower Class) on the Hollingshead Index.

A checklist was used to indicate the presence or absence of each of the symptoms of interest. The researcher devised detailed criteria for noting the occurrence of each symptom. These criteria and the checklist are listed in Appendix C. Abbreviated criteria are listed below.

Thought broadcasting: Subject states that others can hear his thoughts or read his mind, or states that he can read the minds of others.

Thought insertion: Subject believes that a person or agent can put thoughts into his mind or can transfer thoughts to him.

Thought alienation or thoughts controlled: Subject believes that a person or agent can remove or steal thoughts from his mind.

Controlled actions: Subject believes that some other person or agent controls his movements or actions.

Controlled feelings or impulses: Subject believes that he is being forced to want things that he does not want himself.

Controlled volition: Subject believes that some force other than himself controls his intentions, as though he has no will of his own.

Subject hears a running commentary on his behaviour or thoughts: Subject hears voices making statements about him, criticizing him, or interrogating him.

Subject hears two or more voices conversing with each other.

Procedure

Information about the occupations of subjects and their parents was recorded separately from information about the hallucinations and delusions of subjects. Two raters, the author and another graduate student, first classified all occupations according to the Wright scale, then classified all occupations according to the Hollingshead Index without referring to the scores that they had assigned on the first scale. This procedure ensured that scores on one scale were assigned independently of scores on the other scale. Forms for recording occupational ratings are presented in Appendix C.

The two raters scored for the occurrence of the symptoms of interest after they had finished rating all occupations on both scales. The assistant did not know the hypothesis of the study. This procedure ensured that scores on the symptomatology variable were independent of scores on the two occupational variables.

The two raters compared their scores after each rater had assigned scores to 50 of the 200 subjects. This procedure was repeated for each of the three variables that were scored. Scoring criteria were clarified after each preliminary check. These were the only times that one rater knew about the scores that the other rater assigned. The two raters assigned scores without consulting each other after the scoring criteria were clarified. This procedure ensured

that the two raters assigned scores independently of each other.

Preparation of the Data for Analysis

The two raters assigned scores on the two measures of social class to every occupation that a subject had been recorded as holding before his first admission for schizophrenia; they also rated every occupation listed for the parents of subjects. Each rater assigned scores to a total of 358 occupations or descriptions of occupational status. The researcher selected 200 of these occupations for analysis, one for each subject. For subjects over the age of 20, the score for the occupation that they held at the time of admission was used in the analysis. Parental occupation was used in the analysis for subjects who were aged 20 or younger; if both parents were employed, the highest-ranking parental occupation was used in the analysis.

Assignment of Numerical Scores to Occupations

Hollingshead Index of Social Position.. The researcher coded the values assigned on the Hollingshead Index on an interval scale using the following values:

1. Not employed=0.
2. Class 5 (Lower Class)=1.
3. Class 4 (Working Class)=2.
4. Class 3 (Middle Class)=3.

5. Class 2 (Upper Middle Class)=4.

6. Class 1 (Upper Class)=5.

These codes are intended to reflect corresponding degrees of social status.

Wright Scale. The major class categories (1, 2, 3) and two of the three marginal categories (1-2 and 2-3) of the Wright scale can be ordered to yield an interval scale, but the remaining marginal category (1-3) cannot readily be incorportated into such a coding system. The researcher addressed this problem by assigning the following numerical values to occupations according to the Wright scale:

1. Not employed=0.

2. Marginally employed = .50.

3. Class 3 = 1.00.

4. Class 2-3 = 1.66.

5. Class 1-3 = 2.46.

6. Class 2 = 4.00.

7. Class 1-2 = 4.33.

8. Class 1 = 4.83

The values above were assigned according to the following system. Each subject who was fully employed received a score of at least 1. Fully employed subjects received additional points according to the degree to which occupations within their class involve control over various aspects of working conditions. Occupations within a group can involve complete control (1.00), partial control (.66), minimal con-

trol (.33), or no control (0) over a given aspect of working conditions. Members of Class 3 (Workers) thus receive a score of 1.00 because they are fully employed, but receive no additional scores because they do not control any aspect of their workplace. In contrast, members of Class 2-3 (Small Employers) receive a score of 1 because they are fully employed, and additional scores of 1.00, 1.00, .33, and 1.00 for a total of 4.33 because they control the economic resources of their workplace, control the means of production there, minimally control the labour of others, and do not sell their own labour power. Occupational groups and numerical scores that correspond to the degree of control they involve are displayed in Table 5.

Class 1 and Class 1-3 each subsume more than one occupational group. Subjects who were members of these two classes were assigned scores that equalled the average degree of control that occupational groups within the class exercise. Thus all members of Class 1-3 received a score of 2.46, regardless of the specific occupational group to which they belonged.

Assignment of numerical values to other variables.. Subjects received a score of 1 for Schneidrian symptoms if any of the symptoms of interest were noted, regardless of the number of symptoms present. A subject received a score of 0 on the variable if none of the symptoms of interest were noted. The presence or absence of other hallucinations or

Table 5

Degrees of Control Exercised by Occupational and Class Groups
With Corresponding Numerical Values on the Wright Scale

Occupational Group	Employment Status	Economic Control	Control Over Physical Means Of Production	Control Over Others' Labour Power	Sale of One's Own Labour Power (yes=0, no=1)	Class Number or Code	Total or Average Value Assigned to Occupations in Class Group
Proprietors of Large Concerns	employed =1	complete=1	complete=1	complete=1	no=1	CLASS 1	4.83
Top Corporate Executives	employed =1	complete=1	complete=1	complete=1	minimal= .66		
Small Employers	employed=1	complete=1	complete=1	minimal=.33	no=1	CLASS 1-2	4.33
Proprietors Without Employees	employed =1	complete=1	complete=1	none=0	no=1	CLASS 2	4.00
Top Managers	employed=1	partial=.66	complete=1	complete=1	partial= .33	CLASS 1-3	2.46
Middle Managers	employed=1	minimal=.33	partial=.66	partial= .66	yes=0		
Technocrats	employed=1	minimal=.33	minimal=.33	minimal= .33	yes=0		
Foremen or Supervisors	employed=1	none=0	none=0	minimal= .33	yes=0		
Semi-Autonomous Employees	employed=1	minimal=.33	minimal=.33	none=0	yes=0	CLASS 2-3	1.66
Working Class	employed=1	none=0	none=0	none=0	yes=0	CLASS 3	1.00
Marginally Employed	marginal=.5	none=0	none=0	none=0	yes=0	ME	.5
Unemployed	not employed=0	none=0	none=0	none=0	-----	NE	0

delusions was noted as a binary score on a separate variable.

Subjects were designated as having fewer than nine years, nine to 12 years, or over 12 years of education for the purpose of analysis. The following age groups were identified: 15 or under, 16 to 20, 21 to 25, 26 to 35, 36 to 45, 45 to 65, 66 and older. The choice of these groups was based on the supposition that the average age of first admission for schizophrenia would be in the early 20's and that these intervals would yield a distribution whose shape was approximately normal. This supposition was confirmed by later measures on the sample.

A subject received a score of 1 on the marital status variable if he had ever been married and a score of 0 on that variable if he had never been married. Presence or absence of parental psychopathology was also scored as a binary variable. A subject received a score of 1 on this variable if either of his parents had been hospitalized for psychiatric disorder, had been described as being disordered by a psychiatrist, or had displayed evidence of grossly psychotic behaviour. Subtype was coded as paranoid (1) or non-paranoid (0).

RESULTS

Descriptive Statistics

The data analyses that pertain to the hypothesis of the study were conducted on 191 of the 200 subjects; data for nine subjects were incomplete because information on their years of education was not available. The sample that was analyzed was comprised of 93 subjects from the Grace General Hospital and 98 subjects from the Selkirk Mental Health Centre. The mean age of the sample was 24.7 years; mean education was 10.0 years. 168 (88.0%) of the subjects were white, 159 (83.2%) had never been married, and 142 (74.3%) had no parent who displayed psychopathology; 72 (37.7%) subjects had been diagnosed paranoid schizophrenic.

86 (45.0%) subjects exhibited one or more of the symptoms of interest. The types of symptoms and the proportion of occurrence of each one are displayed in Table 6. Of the symptoms of interest, "controlled actions" occurred most frequently, followed by the experience of hearing a running commentary on one's behaviour, "controlled thoughts", "thought broadcasting", hearing two or more voices conversing, "thought insertion" and "thought withdrawal", and controlled feelings or impulses.

TABLE 6

Percentage of Sample Exhibiting

Various Types of Hallucinations and Delusions

Symptom Type	Percentage of Sample Exhibiting Symptom
No delusions	23.0
Thought Broadcasting	8.5
Thought Insertion	3.5
Thought Withdrawal	3.5
Thoughts Controlled	9.5
Controlled Actions	17.5
Controlled Feelings or Impulses	1.0
Controlled Volition	0
Other delusions	68.5
S. hears a running commentary on his behaviour	14.5
S. hears two or more voices converse with each other	5.5
Other auditory hallucinations	25.0
Non-auditory hallucinations	17.0
No hallucinations	55.5

Scores on the two social class scales were not distributed normally (see Figures 1 and 2). Mean score on the Hollingshead Index was 1.61 (s. d. = 1.26): 111 (58.1%) subjects were classified as being unemployed or as members of Class 5, the Lower Class. Mean score on the Wright scale was 1.55 (s. d. = 1.30): 109 (57.1%) subjects were classified as being unemployed, marginally employed, or members of Class 3, the working class.

Interrater Reliability

Interrater reliability statistics were computed for scores on each of the symptoms of interest and for scores on both measures of social class. The degree to which the two raters agreed with each other in assigning scores on the Hollingshead Index and the Wright scale was assessed by means of the Pearson product- moment correlation coefficient. This coefficient equals .967 (n = 358) for ratings on the Hollingshead Index and .971 (n = 358) for ratings on the Wright scale. The score that the author assigned was used in cases where the two raters disagreed.

Cohen's Kappa coefficient (Cohen, 1960) was used to assess the degree to which the two raters agreed in noting the occurrence of different types of hallucinaions and delusions. This statistic controls for chance agreement between raters. Kappa coefficients for each category included in the symptom checklist are listed in Table 7. Williams and

Figure 1

Numbers of Subjects in Class Groups:

Hollingshead Index

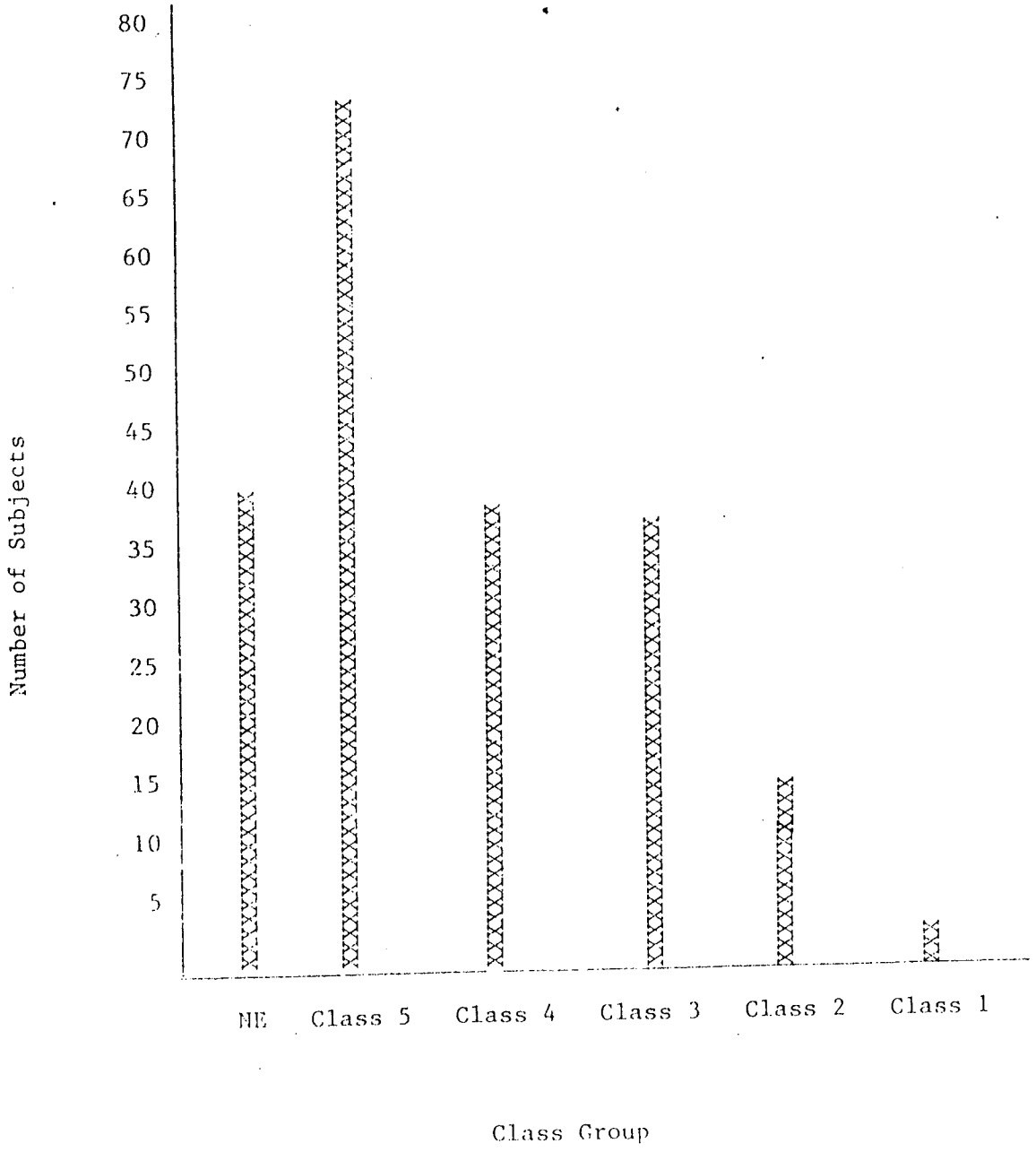

Figure 2

Numbers of Subjects in Class Groups:

Wright Scale

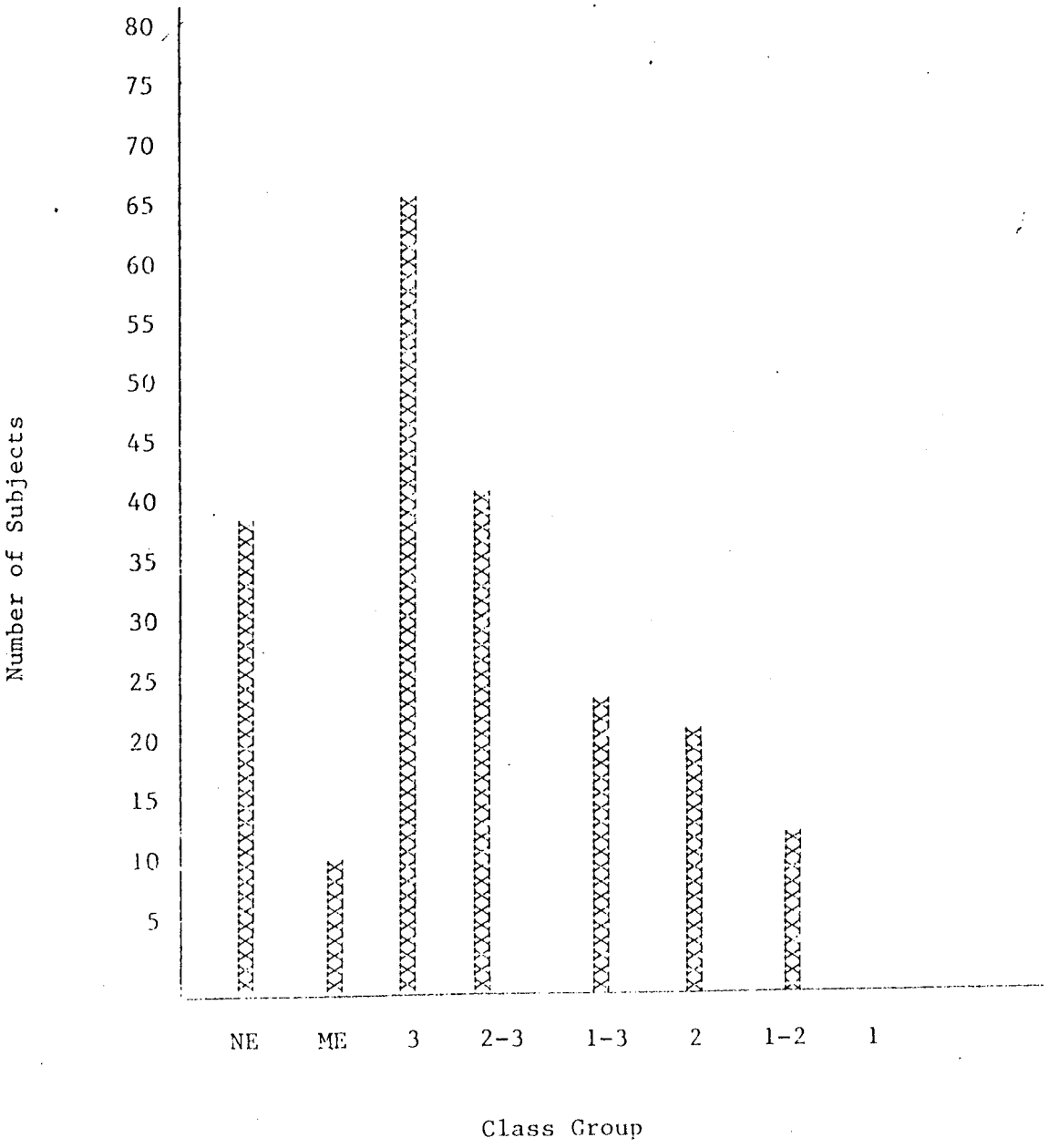

Table 7

Kappa Coefficients

For Rating the Occurrence of Hallucinations and Delusions

Symptom Type	Kappa
No hallucinations	.863
Thought broadcasting	.664
Thought insertion	.920
Thought withdrawal	.762
Thoughts controlled	.713
Controlled actions	.703
Controlled feelings or impulses	.664
Controlled volition	----
Other delusions	.741
No hallucinations present	.914
S. hears a running commentary on his behaviour	.718
S. hears two or more voices converse with each other	.427
Other auditory hallucinations	.820
Non-auditory hallucinations	.758

Spitzer (1980) assert that a Kappa coefficient of .7 or greater indicates high interrater reliability when subjects are being classified into major diagnostic categories (e.g., schizophrenia vs. major affective disorders). Concordance between the two raters used in the present study meets this conservative criterion for six of nine of the symptoms of interest. "Thought insertion" (K = .920) and "thought withdrawal" (K= .762) were scored most reliably. Interrater agreement for "controlled feelings or impulses" and for hallucinations in which the subject hears voices conversing with each did not meet the .7 criterion. "Controlled feelings" were noted as occurring in only 1% of the sample; hallucinations wherein voices are heard conversing with each other were not as occurring in only 5.5% of the sample. Kappa for delusions of controlled volition could not be computed becauso one rater did not note even a single instance of the delusion among the 200 subjects.

Results Germane to the Hypotheses of the Study

Linear regression theory is predicated on the assumption that the scores on independent variables are sampled from a normal distribution. Discriminant analysis, which can be used to identify the degree to which scores on different variables can be used to classify subjects into different populations, is also predicated on this assumption; its validity is particularly questionable when binary independent variables are employed (Press and Wilson, 1978).

Logistic regression is not predicated on the assumption that scores on independent variables are sampled from a normal population. Categorical or binary independent variables as well as variables that are scored on an interval scale can be used in analysis if logistic regression is employed. Logistic regression does require that dependent variable scores be binary. Some of the independent variables in the present study are binary (e.g., race, marital status) and some are interval variables for which scores are evidently not distributed normally (e.g., Wright scale, Hollingshead Index). These considerations imply that logistic regression is the method of choice for analyzing the data of the present study. Scores on the dependent variable, occurrence of Schneiderian symptoms, were coded in binary form (present or absent) so that logistic regression could be used. The conclusions of the present study will be based primarily on logistic regression results. Simple correlations between variables will be presented to introduce and to clarify results yielded by logistic regression.

Pearson product-moment correlations among historical variables and correlations between independent variables and the first-rank symptoms proposed by Schneider are displayed in Table 8. The correlation between race and occurrence of Schneiderian symptoms is statistically significant ($r = -.15$; $p. = .036$), as is the correlation between subtype and occurrence of the symptoms ($r = .12$; $p. = .047$). No other

Table 8

Intercorrelations Between Historical Variables;

Simple Correlations Between Historical Variables

and Presence or Absence of Schneiderian Symptoms

	Holl	Wright	Race	Educ	Marstat	Age	Subtype	Hosp	Parpsyc
Holl	1.00								
Wright	.68	1.00							
Race	-.08	-.11	1.00						
Educ	.19	-.12	.21	1.00					
Marstat	.02	-.04	.05	-.06	1.00				
Age	-.07	.01	.11	-.13	.30	1.00			
Subtype	.05	-.04	.07	.01	.22	.18	1.00		
Hosp	.02	.20	-.26	-.30	-.04	.07	.08	1.00	
Parpsyc	-.02	-.06	.14	.00	-.04	-.11	.04	.02	1.00
Sch	-.10	-.08	-.15*	.02	.07	.05	.12**	.09	.00

* p. = .036

** p. = .047

variable correlated significantly with the occurrence of the symptoms. The reader will note that the correlation of scores on the Wright scale with scores on the Hollingshead Index of Social Position equals .68 (p. = .0001).

If some of the independent variables in a multiple regression are intercorrelated, then estimates of the degree to which the correlated variables predict the dependent variable tend to be inaccurate (Pedhazur, 1982). Gordon (1974) points out that the coefficients of intercorrelated independent variables in a logistic regression can also be inaccurate.

Scores on the Hollingshead Index correlate highly with scores on the Wright scale; estimates of the degree to which each of these variables contribute to the prediction of Schneiderian symptoms might not be accurate if both variables were to be included in the same logistic regression. Results of the present study include two logistitic regression analyses, one with score on the Wright scale and all other independent variables except score on the Hollingshead Index, and one with the Hollingshead Index and all other independent variables except score on the Wright scale. These analyses yield information about the independent contribution of each social class measure to the prediction of the occurrence of Schneiderian symptoms and permit comparison of the two social class measures in this regard.

Results of the two logistic regression analyses are presented in Table 9. Logistic regression analysis yields coefficients for independent variables that are analagous to raw b weights in linear regression. Coefficients are divided by their respective standard errors to yield estimates of the degree to which each independent variable predicts the occurrence of the dependent variable. Each standardized weight is a t-value with n=191 degrees of freedom; these values are also displayed in Table 9.

The coefficients and t-values listed under the column headed "Variable Set A" are those that correspond to independent variables in the logistic regression that includes score on the Wright scale and all other variables except score on the Hollingshead Index. Of these variables, only race significantly predicts the occurrence of Schneiderian symptoms ($t = -1.65$; $p. < .05$); score on the Wright scale does not significantly predict their occurrence. Hosmer's chi-square test for goodness of fit works from the assumption that a set of independent variables yields a function that fits the data; the probability that this assumption holds in this case equals .52. The equation yielded by the results of the logistic regression that includes score on the Wright scale and all other variables except score on the Hollingshead Index correctly predicted the presence or absence of Schneiderian symptoms for 61.8% of cases in the study.

Table 9

Logistic Regression Coefficients and T-Values of Independent Variables in Prediction of Schneiderian Symptoms

Variable Name	Variable Set A		Variable Set B	
	Coefficient	T-Value	Coefficient	T-Value
Wright Score	-.14	-1.16	not entered	
Hollingshead Score	not entered		-.17	-1.37
Race	-.41	-1.65	-.36	-1.47
Education	-.04	-.19	.00	.02
Subtype	.24	1.52	.26	1.62
Marital Status	.11	.48	.14	.61
Parental Psychopathology	.00	.04	.00	.03
Age	.00	.04	-.03	-.20
Hospital	.13	.81	.11	.68
p. for Hosmer's Chi-square:	.52		.68	
Proportion of Correct Classifications:	.618		.628	

The coefficients and t-values listed under the column "Variable Set B" are those that correspond to independent variables in the logistic regression that includes score on the Hollingshead Index and all other variables except score on the Wright scale. None of these variables significantly predicts the occurrence of Schneiderian symptoms. The probability that these variables yield a function that fits the data equals .43. Scores on the Hollingshead Index and all other variables except for score on the Wright scale correctly predicted the presence or absence of Schneiderian symptoms for 62.8% of cases in the study.

Race and subtype significantly predict the occurrence of Schneiderian hallucinations and delusions when these two are the only terms included in a logistic regression. The coefficients and t-values that correspond to these two variables in such a regression are shown in Table 10. Records of Schneiderian symptoms are more prevalent for non-white male schizophrenic patients than for white male schizophrenic patients ($t = -2.19$; $p. < .025$) and are more prevalent for patients with a diagnosis of paranoid type than for other schizophrenic patients ($t = 1.84$; $p. < .05$). These results are consistent with simple correlation results, which indicate that only race and subtype correlate significantly with records of Schneiderian hallucinations and delusions. The probability that these two variables yield a function that fits the data equals .76. Race and subtype correctly pre-

Table 10

Logistic Regression Coefficients and T-Values of Race and Subtype As Predictors of Schneiderian Hallucinations and Delusions

Variable Name	Coefficient	T-Value	p
Race	-.50	-2.19	< .025
Subtype	.28	1.84	< .05

p for Hosmer's Chi-square: .76

Proportion of Correct Classifications: .605

dicted records of Schneiderian symptoms in 60.5% of cases in the study.

The observed relations of race and subtype with presence or absence of Schneiderian symptoms are not specifically interpretable if race and subtype bear similar relations to the observed occurrence of other hallucinations and delusions. Correlations of all independent variables with non-Schneiderian hallucinations and delusions are presented for illustrative purposes in Table 11. It is apparent that subtype and hospital but not race significantly predicted the recorded occurrence of non-Schneiderian hallucinations and delusions. This impression is confirmed by the results of a logistic regression analysis using only subtype, race, and hospital as independent variables. Results of that analysis are presented in Table 12. Records of non-Schneiderian hallucinations and delusions are significantly more prevalent among male schizophrenic patients with a diagnosis of paranoid subtype than among other male schizophrenic patients ($t = 3.14$; $p. < .005$). A significant relation of recorded occurrence of non-Schneiderian hallucinations and delusions with hospital was also noted ($t = 2.11$; $p. < .025$). Race does not significantly predict the occurrence of non-Schneiderian hallucinations and delusions ($t = -1.02$; $p. > .05$). It thus was found that subtype and race but not hospital are significant predictors of Schneiderian hallucinations and delusions while subtype and hospital but not race

Table 11

Pearson Correlation Coefficients for

Historical Variables and Non-Schneiderian Hallucinations and Delusions

Holl	-.04
Wright	0.00
Race	-.10*
Educ	0.00
Marstat	.04
Age	.08
Subtype	.22
Hosp	.19*
Parpsyc	.01

* $p < .01$

Table 12

Logistic Regression Coefficients and T-Values of Subtype, Hospital, and Race as Predictors of Non-Schneiderian Hallucinations and Delusions

Variable Name	Coefficient	T-Value	p
Race	-.343	-1.02	> .05
Subtype	.617	3.01	< .005
Hospital	.387	2.11	< .025

p for Hosmer's Chi-Square	.76
Proportion of Current Classifications	.695

are significant predictors of the occurrence of other hallucinations and delusions.

The correlation between occurrence of Schneiderian symptoms and occurrence of other hallucinations and delusions equals .20 ($p = .002$). The correlation between occurrence of Schneiderian symptoms and occurrence of any hallucinations or delusions (i.e., Schneiderian plus other hallucinations and delusions) equals .81. ($p. = .000$).

DISCUSSION

The results of the present study indicate that the majority of the hallucinations and delusions that Schneider posits as sufficing for a diagnosis of schizophrenia can be assessed reliably. The two raters employed in the present study were able to agree as to when these behaviours were expressed even though it can be assumed that the behaviours were not of particular interest in the conditions under which their presence was originally recorded.

The two raters also concurred as they assigned occupations to the categories that can be derived from the two different systems of identifying social class membership. Results of the study show that occupations can be reliably and systematically classified into categories that are derived from the premise that social class groups can be distinguished from each other on the basis of the degree to which their members control different aspects of conditions of work.

A majority of the subjects in the present study were classified by the Wright Scale as being unemployed, marginally employed, or members of the working class. Similarly, most subjects were classified by the Hollingshead Index of Social Position as being unemployed or members of the lowest

class. These results are consistent with those of previous studies, which indicate that a majority of persons who receive a diagnosis of schizophrenia are unemployed or are employed in low-income occupations at the time the diagnosis is conferred.

It was predicted that patients who had been unemployed or who had been employed in working-class occupations as defined by Wright would be more likely to exhibit Schneiderian symptoms at the time of their first admission for schizophrenia than would schizophrenic patients who had been employed in other occupations prior to their first admission. Although scores on the Wright scale were found to correlate inversely with the presence of the behaviours of interest, the magnitude of this correlation was insignificant. Scores on the Hollingshead Index of Social Position were found to correlate inversely with the presence of the behaviours of interest, but the magnitude of that correlation was also insignificant. Some possible explanations for the apparent lack of a relation between occupation and schizophrenic symptomatology will now be considered.

As stated in the introduction to this work, Schneider bases his designation of the behaviours of interest as cardinal symptoms of schizophrenia on the assumption that these behaviours indicate the presence of an unidentified morbid somatic state. It can be supposed that he would predict that these behaviours would occur independently of social

and historical events. The apparent lack of significant relation between the behaviours and most of the historical events assessed in the present study is consistent with the view that Schneiderian behaviours are not prompted by such events. Other explanations for the results of the present study can also be found. Discussion of these explanations will concern the three issues that are listed below. (1) Could the study have failed to detect a relation between Schneiderian symptoms and score on the Wright scale where one occurred? (2) Does the present study conclusively test the notion that Schneiderian hallucinations and delusions can vary as a function of social circumstances? (3) Do results of the study indicate that degree of control over working conditions does not bear on the relation of socioeconmic status to diagnosed schizophrenia?

The first issue to be considered concerns the possibility of the occurrence of an unidentified relation between scores on the Wright scale and incidence of the behaviours of interest. Such a relation might have gone undetected if any of the following conditions had occurred. (1) Hospital records contained occupational information or descriptions of symptomatology that were inaccurate or incomplete. (2) Records were transcribed in a way that was systematically biased against confirmation of the hypothesis. (3) Transcribed information was scored in a way that was biased against confirmation of the hypothesis.

None of these conceivable conditions is very likely to have occurred. It is highly unlikely that possible systematic error in clinical records might account for the results of the study. Information was compiled from the records of two hospitals; a significant relation between hospital and reported incidence of the behaviours of interest was not found. If systematic error occurred in the recording of demographic information or symptoms, it occurred in the same direction in both hospitals, it occurred despite the presence of different staff members, and it occurred throughout the years for which data were sampled. Even if the behaviours of interest occurred more frequently than they were recorded, this situation would promote negative findings only if there occurred a tendency to record the behaviours for members of high socioeconomic groups but not for members of low socioeconomic groups. Sample size was large enough so that a significant relation between the two variables would have been detected if one occurred.

It is also highly unlikely that the author erred systematically as he recorded the clinical information used in the study. The accuracy of transcription can, however, be checked against the original records.

The author designed the scale that were used to rate social class membership and occurrence of the behaviours of interest. Criteria for scoring occurrence of the behaviours of interest are the same as those that have been published

in earlier investigations. Wright does not present detailed lists of occupations that can be classified into the different categories that he proposes; it thus is possible that neither rater categorized occupations accurately. Such inaccuracy would not necessarily increase the likelihood of obtaining results that contradict the hypothesis.

Two raters assigned scores to occupations and rated the occurrence of the behaviours of interest. Occupational information and symptomatology were recorded separately. The two raters assigned scores on the Wright scale to all subjects, then rated the symptomatology of all subjects. The two raters did not communicate after they agreed on how scoring criteria should be interpreted. Rater agreement was acceptable. These procedures exclude the possibility of systematic bias in rating symptomatology and social class membership. It thus is most likely that scores on the Wright scale are in fact not significantly related to the occurrence of Schneiderian hallucinations and delusions.

The second question that issues from results of the present study is that of whether the present study is a conclusive test of the notion that the occurrence of Schneiderian hallucinations and delusions can vary as a function of social circumstances. The present study was designed to assess the presence of a relation between broad demographic characteristics and the incidence of Schneiderian hallucinations and delusions. Such a design is based on the assump-

tion that any relation between social circumstances and occurrence of the behaviours of interest would be consistent and predictable across all individuals that comprise socioeconomic groups. It was assumed that (1) individuals in similar social circumstances respond to them in similar ways, (2) that a common perceptual theme pervades the class of Schneiderian behaviours, and (3) that different individuals who exhibit these apparently similar behaviours do so in response to similar circumstances. Each of these assumptions is independent of the others. None of the assumptions is crucial to the notion that Schneiderian behaviours can vary as a function of social circumstances. One or more of the behaviours might vary predictably as a function of circumstances, but might do so as a function of different sorts of circumstances for different individuals. To give particular example, it is likely that one individual may be attuned to socioeconomic events such that his experiences covary with such events, while another individual may be attuned to events in his family and exhibit the symptoms as a function of events in that domain.

The considerations mentioned above suggest that more might be learned about variability in the occurrence of Schneiderian behaviours from the study of single individuals over time than from the study of differences between groups at the same time. Such research, however, involves participation and consent of subjects as well as precise means of

assessing the behaviours of interest as they occur. These conditions cannot be met within the limits of archival research. It remains to be seen whether research under such conditions would indicate that the occurence of Schneiderian hallucinations and delusions varies as a function of the degree to which an individual controls events in his environment.

The present study was conceived and designed in the hope that its results might help to account for the inverse relation between socioeconomic status and diagnosed schizophrenia. The behaviours that Schneider identifies as first-rank symptoms of schizophrenia and the system for classifying occupations that Wright proposes were employed in order to specify the concepts of social class and schizophrenia. These two measures were selected so that the notion that lack of control over living conditions is an antecedent to the onset of certain schizophrenic behaviours might be indirectly tested. The absence of an observed relation between the two measures seems to contradict this notion. The question of whether this notion may still be tenable will now be discussed. Two issues will be considered. The first concerns whether the system that Wright proposes accurately assesses the degree to which control over working conditions inheres in occupations. The second issue concerns the absence of a comparison group in the present study.

The system for classifying occupations that Wright proposes is based on the assumption that the occupations in different categories are typified by varying degrees of control over certain conditions of work. Wright conceived the categories from theoretical premises; the system is an empirical one only to the degree that the criteria for inclusion of certain occupations within certain categories are based on census data. There have not been any studies that have been designed to test the assumption that the categories Wright proposes accurately describe different degrees of control over occupational conditions. The scale could be partially validated if it was found that members of the different occupational groups that Wright specifies differ in their perceptions of the degree to which they control their working conditions. Evidence of this sort would be a useful preliminary for use of the Wright scale in any future inquiry into the thesis that members of working-class occupations lack control over conditions of employment and that this situation accounts in part for the greater prevalence of diagnosed schizophrenia among lower socioeconomic groups. Use of an independently validated measure of control over economic conditions might yield a relation with particular schizophrenic behaviours. Evidence of such a relation would accord with evidence that schizophrenics display a fixed tendency to perceive that events are beyond their control (Harrow and Ferrante, 1969).

The thesis that historical degree of control over working conditions accounts in part for the inverse relation between diagnosed schizophrenia and socioeconomic status requires at least two sorts of evidence in order to be conclusively tenable. First, as has been argued, a means of accurately assessing degree of control over working conditions must be identified. Second, the measure of control over working conditions must discriminate persons who are diagnosed schizophrenic from persons without the diagnosis. As has been discussed, the system for classifying occupations that Wright proposes may or may not meet the first of these conditions. A majority of subjects in the present study received scores on the Wright scale which suggest that they lacked control over occupational and employment conditions prior to their first admission for schizophrenia. The present study was designed to assess differences in the manifestation of certain behaviours within a sample of schizophrenic patients; it was not designed with the intent of discriminating schizophrenic patients from members of some other group. As such, it was designed to be only an indirect test of the theory proposed in the introduction to this work. The lack of a significant relation between the two variables of major interest thus does not serve to refute the proposed theory.

The various plausible explanations for the failure to observe a significant relation between scores on the Wright

scale and the presence or absence of Schneiderian hallucinations and delusions will now be summarized and an attempt to compare their tenability will be presented. (1) The behaviours of interest do not correlate with historical events in the lives of patients who are diagnosed as schizophrenic because they indicate the presence of a morbid somatic condition. This interpretation is consistent with reasons for which Schneider accords cardinal signicance to the behaviours of interest. (2) The lack of relation between the two measures can be accounted for by bias in recording or measurement. It has already been argued that this explanation is untenable. (3) The symptoms of interest can vary as a function of social events, but this variability can best be investigated by means of observations on individuals over time as opposed to comparison of the general characteristics of groups. To this it may be added that some disordered behaviour exhibited by persons diagnosed as schizophrenic may vary as a function of living conditions even though those assessed in the present study do not do so. (4) The system that Wright proposes for classifying occupations may not accurately assess the degree of control that inheres in different occupations.

The third of these explanations seems to be the most tenable. In the present study, the occurrence of the hallucinations and delusions of interest did covary in the predicted direction with occupation before admission, but did not

do so to a significant degree. Even if this predicted relation had been found to be significant, the finding that occupation before admission accounts for a substantial proportion of the variability in the behaviours of interest would have been a surprising one. It could probably be expected that occurrence of the behaviours also varies as a function of events in other domains of daily life. Proponents of an entrapment hypothesis of psychotic behaviour would especially emphasize the import of events in the family domain. The use of archival data in the present study excluded observation of events in the daily lives of individuals and of the ways in which individuals perceive or interpret those events.

The observation just presented prompts discussion of a final topic. The crux of the hypothesis of the present study is that a complete understanding of the inverse relation between socioeconomic status and diagnosed schizophrenia must include specification of the phenomenology of disordered behaviour and of the social and economic events that are concurrent with disordered or distorted perceptions. Most investigations into the relation between socioeconomic status and diagnosed schizophrenia have neglected detailed inquiry into the experiences of the individuals who comprise the research sample. This omission contrasts with a problem that seems to inhere in phenomenological psychiatry. Schneider, a major exponent of the school, advocates de-

tailed inquiry into the phenomenology of disorder but predicates his method on the presupposition that the experiences that are most salient to schizophrenic disorder do not relate to social or economic events in the life history of the individual. This presupposition amounts to an assertion of the null hypothesis and begs the question of the etiology of the behaviours of interest in the present study. The value of meticulous, detailed inquiry into the phenomenology of disordered behaviour among persons who are diagnosed schizophrenic is therefore seriously compromised by the postulates of some of its proponents.

Some results of the present study indicate that further inquiry into the correspondence between social conditions and phenomenology of diagnosed schizophrenia would be worthwhile. Results indicate that incidence of the experiences that Schneider posits as sufficing for a diagnosis of schizophrenia is greater among non-white male schizophrenics at first admission than among white male schizophrenics at first admission. This result confirms one hypothesis of the study. The presence or absence of Schneiderian experiences was correctly classified in a majority of cases on the basis of race and subtype. These two variables yield a logistic regression function that probably fits the data in the present study. Race and subtype predict the presence or absence of Schneiderian behaviours only slightly less accurately than a function that is comprised of all the variables in

the study. These findings seem to merit attempts at explanation.

The finding that Schneiderian experiences are more prevalent among non-white subjects than among white subjects will first be discussed. A majority (74%) of non-white subjects were Native Indians or Metis. Canada is a caste society as well as a class society: power is determined by race as well as by control over economic conditions. Non-white and working-class groups lack political and economic power. A disproportionately large number of non-whites are unemployed or work in low-paying jobs. Natives and Metis comprise castes which not only lack economic and political power relative to whites: these groups have been dispossessed of territory and their cultures and languages have been usurped by those of whites. In Canadian society, skin colour is an immediate and public signifier of social status. Caste differences pervade everyday life: in every contact with members of representations of white culture, Natives and Metis enact and are reminded of their subjugation.

The absoluteness and pervasiveness of racial power differences in Canadian society, in association with the greater prevalence of phenomena that suggest the experience of being controlled, may suggest that these two sets of events are interrelated. On the other hand, the tenability of such an interpretation is compromised by the apparent lack of significant relation between the behaviours of interest and

other presumable measures of social power or control. Cultural differences other than degree of social power might thus account for the greater incidence of reported Schneiderian experiences among non-white schizophrenic patients. To this it can be added that the comparatively small number of non-white subjects in the sample warrants caution against unequivocal conclusions based on its characteristics. Observation of a relation between race and the behaviours of interest nonetheless indicates that further inquiry into relations between socioeconomic status and phenomenology of disorder is warranted.

Results of the present study also indicate that schizophrenic patients who receive a diagnosis of paranoid subtype are more apt to exhibit Schneiderian experiences than are schizophrenic patients who are not so designated. This finding confirms another hypothesis of the study. Reports of being controlled or of hearing voices comment on one's behaviour are similar to descriptions of delusions of persecution and to delusions of being watched. The same person can exhibit such delusions as well as Schneiderian behaviours. An example is that of one subject who heard voices converse about him, believed that others could transfer thoughts to his head, and believed that people were chasing him and trying to poison him. Schneiderian experiences thus are similar to paranoid delusions and may tend to occur with them, but are not identical to them. It thus is not sur-

prising that subjects diagnosed as paranoid schizophrenic were more apt to exhibit other hallucinations and delusions as well. The finding that paranoid subtype is associated with the occurrence of Schneiderian experiences thus has little bearing on the thesis of the present study.

Summary and Conclusions

The present study was designed as an indirect test of the contention that the inverse relation between social class and diagnosed schizophrenia may occur in part because members of lower socioeconomic classes are less able to control factors that relate to employment than are members of other socioeconomic groups. It was argued that previous theory concerning the relation is inadequate because (1) it lacks an articulation of the concept of social class and (2) it does not specify conditions under which particular schizophrenic behaviours will occur. The concept of control over living conditions was defined and a system for assigning occupations into social class categoriew on the basis of degree of control over working conditions was introduced. This system, which was proposed by E. O. Wright, yields occupational groups that differ in composition from those yielded by the Hollingshead Index of Social Position, the measure of socioeconomic status that conventionally has been used in investigation into the problem of interest.

The hallucinations and delusions described by the first-rank criteria for a diagnosis of schizophrenia proposed by Schneider were selected as the behaviours of interest under the following assumptions. (1) The behaviours significantly characterize schizophrenic populations. (2) They can vary as a function of observable conditions. (3) They are likely to be recorded if they occur. (4) It is possible to construe them as responses to the degree to which a person controls important events in his environment. The etiological and methodological premises that prompted Schneider to designate these behaviours as first-rank criteria for a diagnosis of schizophrenia were briefly presented with emphasis on his supposition that the behaviours of interest indicate the occurrence of a morbid somatic process.

Some suggestive evidence for the major hypothesis of the study was presented. It was argued that both lower-class and middle-class schizophrenics lack control over important environmental events prior to the onset of disorder, and that economic events seemed to be particularly important for members of both groups. The covariation between economic trends and hospital admission rates was presented as suggestive evidence for the proposed theory. The locus-of-control literature indicates that schizophrenic patients display a fixed and pronounced tendency to perceive events in their lives as controlled by factors other than themselves.

It was predicted that the incidence of Schneiderian experiences would be relatively high among members of the following groups of schizophrenic patients: (1) patients who were unemployed or who were employed in working-class occupations as defined by Wright prior to their first admission; (2) non-white patients; (3) patients with few years of education; (4) patients who had never been married; (5) paranoid schizophrenics. The second and fifth hypotheses were confirmed. Results were consistent with the first and third hypotheses, but these results were not statistically significant.

Results prompted discussion of whether a relation between scores on the Wright scale and occurrence of the symptoms of interest could have gone undetected, of whether the symptoms of interest might vary as a function of any social circumstances, and of whether results indicate that degree of control over working conditions has no bearing on the inverse relation between socioeconomic status and diagnosed schizophrenia. It was contended that scores on the Wright scale and occurrence of Schneiderian hallucinations and delusions are in fact unrelated. With regard to the second issue, it was suggested that the occurrence of Schneiderian hallucinations and delusions might vary significantly with the social circumstances of individuals over time and that the present study was not designed to assess such covariation. Two arguments were presented with regard to the third issue. The

first was that the system for classifying occupations that Wright designed has not been independently validated and that it thus might not accurately assess the degree to which occupations involve control over conditions of work. The second was that a conclusive test of the hypothesis that lack of control over economic conditions accounts in part for the inverse relation between diagnosed schizophrenia would require the use of a comparison group.

Schneider appears to argue that the absence of a relation between social or historical events and occurrence of the behaviours of interest shows that the behaviours of interest indicates the presence of an unidentified somatic disorder as the basis for schizophrenia. It was argued that this contention is inadmissible on logical grounds and that it seriously compromises the utility of inquiry into the phenomenology of schizophrenic disorder.

It is evident that the presence or absence of Schneiderian experiences could be correctly predicted for a majority of subjects on the basis of race and diagnostic subtype. These two variables yield a function that probably fits the data in the present study. Diagnostic subtype but not race significantly predicts the occurrence of other hallucinations and delusions.

Non-white subjects, the majority of whom were Native or Metis, were more apt to exhibit Schneiderian hallucinations and delusions at first admission for schizophrenia than

white subjects. It is difficult to interpret this finding in the absence of observed significant relations between other demographic variables and the behaviours of interest.

The finding that male paranoid schizophrenics are more apt to display Schneiderian symptoms than other male schizophrenics is not surprising when it is considered that such patients are apt to exhibit other hallucinations and delusions as well and that the content of Schneiderian symptoms is similar to that of delusions of persecution and of being observed.

Appendix A

CRITERIA FOR SCORES ON THE HOLLINGSHEAD INDEX

NE (not employed).

Assign this rating if a person is listed as being any of the following.

1. never employed
2. unemployed for 3 months or longer immediately before admission.
3. unemployed for "a long period of time".
4. unemployed (no elaboration).
5. a student without other employment.

If a person has been unemployed for less than 3 months, do not assign a rating of NE. If a person's occupational status meets any of the conditions 1-5 and any former occupation is also listed, assign a rating of NE, but list the rating of the former occupation(s) in parentheses.

Note: in cases of retired persons, simply assign the rating that would ordinarily be assigned to the occupation.

Class 5: Lower Class

Sporadically employed persons, unskilled workers, and semi-skilled workers are included in this category. Most positions in the category are non-unionized. Pay is low (around minimum wage); hours are long. Examples of Class 5 occupations follow.

1. Sporadically employed people. Subject is employed as a casual labourer, is employed part-time only, or has never been employed in the same position for more than six months.
2. Unskilled labourers. Unskilled labour can be defined as work that is accomplished through sheer physical exertion. Menial work can also be categorized as unskilled. Examples: railway section man, janitor, maid, dishwasher, security guard, woodcutter.
3. Semi-skilled workers. These occupations demand manual labour but may involve operation of very simple machines. Examples: trapper, railway signal man, worker in fish processing plant, stock boy, tannery worker, foundry worker, paper mill worker, gasoline station attendant.
4. All apprentices.
5. Personal service workers. Examples: barber, porter, shoe-shine boy, orderly, waiter, beautician.

Class 4: Working Class

The working class is comprised primarily of skilled "blue-collar" workers. The following occupations can be classified within this category.

1. Occupations that involve work with complex equipment. Examples: welder, typesetter, tool and die maker, vehicle drivers.
2. Craftsmen and technicians. Examples: cabinet maker, watchmaker, plumeber, electrician, carpenter.
3. Operators of heavy equipment. Examples: locomotive operator, crane operator.
4. All foremen.
5. Military personnel who are not officers.
6. Others: auto assemblers, repairmen, shipper-receivers, packagers.

Class 3: Middle Class.

The middle class can approximately be identified as "white-collar" workers who are not wealthy. Examples of occupations that can be classified within Class 3 are listed below.

1. Clerical workers. Examples: bank teller, bookeeper, insurance claims examiner, secretary, retail sales clerk.
2. Technicians who work in offices. Examples: draftsman, computer operator, physiotherapist, analyst of chemical samples, photographer.

3. Low-level civil servants. Examples: section head in government office, mailman, tax form processor, police officer, coroner.
4. Low-level administrative personnel. Examples: shop manager, manager of franchise, grocery store manager, loan officer in bank.
5. Owners of small businesses. Examples: restaurant owner, vendor, laundry owner, owner of small grocery store.
6. Others: owners of small farms, low-ranking military officers.

Class 2: Upper Middle Class

1. Business managers in large firms who execute but do not formulate policy. Examples: district sales manager, manager of bank branch, controllor, corporate accountant, marketing director, personnel director.
2. Proprietors of medium-sized concerns. Examples: owner of contracting business, automobile dealer, owner of small factory, owner of local retail store.
3. Lesser professionals. Examples: public school teacher, engineer, social worker, pharmacist, optician, dentist.
4. Others: Clergyman, professor in public university, mid-ranking military and police officers, minor public officials.

Class 1: Upper Class

1. Executives of large concerns. Examples: Treasurer, vice-president, or president of large corporation; stockbroker.
2. High-ranking public officials. Examples: Mayor of metropolitan city, Senator or Member of Parliament, governor or premier, general, cabinet minister, judge.
3. Proprietors of large concerns. Examples: owner of chain of retail stores, owner of large advertising agency, newspaper publisher.
4. Major professionals. Examples: lawyer, physician, architect, certified public accountant, professor in private university.

Appendix B

INSTRUCTIONS FOR SCORING USING THE WRIGHT SCALE

Occupational status is listed for each subject and for as many family members as possible. List subject numbers and indicate the rater (rater A or rater B) in the left column; list occupational ratings in the column to the right. If more than one occupation is listed for each person, rate each one. In rating occupational status of family members, identify the member with an intitial before the ratings. For example, if the occupation of the subject's mother is listed and merits a rating of 2, then indicate by listing M:2. (The occupation of homemker is not rated in this study.) If two occupation are listed for the subject's father, with the first meriting a rating of 1 and the second meriting a rating of 1-3, indicate by listing F: 1, 1-3.

Criteria for Rating Different Occupational Statuses

NE (Not Employed).

Assign this rating if a person is listed as being any of the following.

1. never employed
2. unemployed for 3 months or longer
3. unemployed for "a long period of time".

4. unemployed (no elaboration).

5. a student without other employment.

If a person has been unemployed for less than 3 months, do not assign a rating of NE. If a person's occupational status meets any of the conditions 1-5 and any former occupation is also listed, assign a rating of NE but list the rating of the former occupation(s) in parentheses; e.g.: NE(2).

ME (Marginally Employed).

Assign this rating if the person

1. is employed part-time (includes casual labourers).
2. has been "sporadically employed"
3. has never been employed in the same position for more than 6 months.
4. is retired

Class 3.

People who hold such jobs have no control over their occupational conditions: they comprise the working class. The following types of occupations receive this rating:

1. labourers (e.g.: construction worker, road repairman, miner, railway section man, farm hand).
2. operators of simple equipment (e.g.: sewing machine operator, typist, keypunch operator).

3. clerical workers (e.g.: sales clerk, cashier, file clerk, receptionist).
4. service workers (e.g.: custodian, waiter, maid, security guard, bank teller, nurse's aide, porter).
5. members of military or police forces who are not officers.
6. "lower class" (unspecified).
7. all apprentices.

Class group 2-3.

Occupations of this sort involve a complex relation to data and things. Alternatively, members of such occupations might say that they have partial freedom over how they work or that their job is one in which they are allowed to make some decisions on their own. They are semi-autonomous employees who are not supervisors but who have minimal control over how they do their job and the rate at which they work. The following types of occupations are assigned a rating of 2-3.

1. people who work with complex machinery, including most machinists and operators of heavy equipment (e.g.: tool and die maker, locomotive operator, press operator, long distance truck driver, crane operator, licensed mechanic).
2. craftsmen and technicians (e.g.: electrician, plumber, jeweler).

3. white-collar coordinators and technical employees who are not supervisors (e.g.: computer operator or programmer, administrative assistant, executive secretary, shipper-receiver).
4. other semi-autonomous employees (e.g.: painter, pharmacist, cook).

Class 2.

Entrepreneurs. People in these occupations are self-employed but have no employees. Examples: farmer (with no elaboration), author, trapper, woodcutter, vendor. This category also includes professionals who are self-employed but have no employees.

Class group 1-2.

Small employers. People in these occupations are self-employed and have fewer than 10 employees. Professionals who are employers are also included in this group. Examples: grocer, farmer with farmhands (e.g., whose adult children are paid to work on the farm), restaurant owner, physician in private practice, partner in law firm, owner of contracting business.

Class group 1-3.

People who hold such jobs exercise partial control over some, but not all aspects of their occupational milieu. They have partial control over either financial resources or over other people in their work environment. The following types of occupations are rated 1-3.

1. managers (e.g.: controllor, sales manager, personnel director, manager of dealership or franchise).
2. technocrats (e.g.: director or medical records, head of computer operations, electrical engineer, mechanical engineer).
3. professionals who are not self-employed (e.g.: corporate lawyer, hospital psychologist, actor, professional musician, registered nurse, professional athlete).
4. foremen and supervisors
5. police and military officers (not enlisted men).
6. others: teachers, most civil servants and bureaucrats, middle class (unspecified).

Class 1.

People in this class maintain control over most if not all aspects of their own occupational environment and that of others. They control investments, they make decisions about the use of production apparatus, and they have the power to hire or fire employees; they may also own the place in which

they work. Only proprietors or corporate executives in firms that employ over 10 people are assigned a rating of 1. Examples: department store owner, president of large corporation, treasurer of large manufacturing concern.

Appendix C

CRITERIA FOR SCORING HALLUCINATIONS AND DELUSIONS

All of the excerpts presented are presumed to be reports of delusions or hallucinations. The scorer should score for the presence of at least some delusions or at least some hallucinations unless it is stated explicitly that no delusions or hallucinations are present. Always check at least one blank under the category of hallucinations and under the category of delusions: e.g., if no delusions are present, check "no delusions"; if no hallucinations are present, check "no hallucinations". Any statement that is quoted directly from hospital records (i.e., in italics) as "thought broadcasting", "thoughts controlled", "thought insertion", etc. is presumed to be accurate, and the appropriate blank should be checked. Any statement in italics that alleges the absence of the phenomena of interest should be disregarded if reports clearly meet the criteria in this supplement.

I. General comments on scoring for delusions:

Most of the entries in this catalog are checked only if S. believes that he is being directed by some agent or person other than himself. Thus, a score is not warranted if

S. only states vaguely that he feels compelled to behave in a certain way. A score is not warranted if he merely says that he is called by God, sent by God, that he always does God's will, or that he hears the voice of God. Special circumstances in which a particular delusion or hallucination can be checked if the S. claims a special relationship with God are outlined below.

Examples and rules for scoring specific instances of delusions:

Thought echoing. Check if S. states that he hears his own thoughts aloud.

Thought broadcasting. Check if S. states that others can hear his thoughts or read his mind, of if S. states that he can read the minds of others or hear their thoughts. This instance should not be checked if S. only asks if or fears that a staff member can read his mind; S. must believe that others can in fact read his mind.

Thought insertion or thought intrusion. S. believes that a person or agent can put thoughts into his mind or can transfer thoughts to him.

Thought withdrawal. S. believes that a person or agency can remove or steal thoughts from his mind. Other examples: S. states that someone has taken away or stolen his soul,

mind, or brain; S. believes that a person or agent is draining mental energy from his mind or brain.

Thought alientation or thoughts controlled. S. believes that his thoughts are imposed on him by some other person or agent. Other examples: S. believes that someone has hypnotized him; S. states explicitly that he is possessed by the Devil, by demons, or by a witch doctor.

Controlled actions. S. believes that some other person or agent controls his movements or actions. This instance should be checked if S. mentions a specific action that he has already committed and states that he committed it because he was directed or ordered to do it of if it is explicitly states that S. believes that his actions are being influenced. It should not be checked if S. states that an effort is being made to influence him to commit certain actions, but it is clear that S. has not committed them. The agent or agency may be voices, God, the Devil, the radio, etc., but in every case a specific agent must be cited.

"Controlled actions" should also be checked if S. thinks that a delusional agency such as another person causes his somatic states (e.g., causing his brain to shrink, causing him to be radioactive, causing a stomach ache).

If S. claims that people other than medical personnel have drugged him and attributes specific actions (e.g., sexual arousal, assault) to the drug, check "controlled ac-

tions" or "controlled thoughts". Do not check either category if S. merely attributes his psychosis to drugs. S. must cite specific actions or thoughts if "controlled thoughts" or "controlled actions" is checked in cases of this sort.

If S. states that a voice or voices directed him to do a certain act that he has committed already, check "controlled actions" and also check "other hallucinations", below. If S. states that a voice tells him to do something but it is clear that he has not committed the act, check "other auditory hallucinations", but do not check "controlled actions".

In general, if it is clear that S. believes that he is being influenced but it is not clear whether he believes it is his thoughts, emotions, actions, or volitions that are controlled, check "controlled actions".

Controlled feelings or impulses. S. believes that he is being forced to want things that he does not want himself. Example: S. states explicitly that the Devil compels him to want to climb telephone poles, even though S. himself does not want to climb them. S. need not actually commit an action in order for him to feel that some other agent is compelling him to want to commit it.

Controlled volition. S. believes that some force other than himself controls his intentions, as though he has no will of his own.

Other delusional experiences. Examples: S. thinks that other people are following him, are spying on him, are out to get him, or are trying to kill him. S. claims to be someone else. S. believes that he has been drugged by people other than doctors (with no elaboration).

If S. believes that others are talking about him, but does not state that he hears their voices, does not identify the voices of particular individuals, and has no other auditory hallucinations, check "other delusional experiences".

If S. hears messages that are directed at him through the radio, television, or other mechanical source, check "other delusional experiences".

As a rule, classify somatic distortions or false beliefs about the body as "other delusional experiences".

II. Hallucinations

Auditory hallucinations.

In the case of both (a) and (b), S. must report the content or meaning of hallucinations. If he does not do so, but auditory hallucinations or voices are reported, check "other auditory hallucinations" (c).

(a) S. hears a running commentary. Check this instance under any of the following conditions:

1. S. reports that he hears a voice or voices making a statement about him or his behaviour and the statement is a complete sentence.
2. S. states that he hears a voice or voices call him a name (e.g., "You're a fag.", "He's stupid.") and it is implicit or explicit that the voice speaks in complete, coherent sentences. Utterances of a single word or nonsense words do not meet this condition.
3. It is stated that S. hears voices criticizing, condemning, or interrogating him. In cases such as these, assume that the voices speak in complete sentences.
4. S. names people who are calling him names and he repeats the names that they are calling him.
5. S. believes that other people are calling him names or are talking about him and has auditory hallucinations of any kind.

(b). S. hears two or more voices converse. This instance can be checked if and only if S. states that he hears two or more voices talking to each other.

Check (a) and (b) if any of the following conditions are met:

1. S. hears two or more voices talk to each other about an action while he commits it.

2. S. states that he hears the voices of others talking to each other about him and it is clear that the voices are hallucinatory.

(c). Other auditory hallucinations. Examples: S. merely talks with voices; S. hears the voice of God or of another person directing him to do something; S. hears single names or single phrases; S. hears others laughing at him; "hearing voices" or "hearing a voice", with no elaboration.

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