AN EMPIRICAL EXAMINATION OF A CLOSED INFORMATION SYSTEM: A STUDY IN THE SOCIOLOGY OF KNOWLEDGE

Ву

WILLIAM FRANKLIN WOODMAN

Bachelor of Science West Texas State University Canyon, Texas 1968

Master of Arts
West Texas State University
Canyon, Texas
1970

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Thesis Approved:

Ivan Raymon	
Ahesis Adviser	
Redand Lodden	
Saniel Selsborik	
Dean of the Graduate College	

FEB 18 1974

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CHAPTER I

INTRODUCTION

There exists today a great deal of discussion and very little understanding of knowledge production and its consumption. The American effort in the direction of mass education is broadly motivated by the underlying premise that the public requires and benefits from formal education. Yet while formal education is little more than the transmission of standardized knowledge, little is known about knowledge as a transmitted commodity or of the presumed efforts of the widespread distribution of the various kinds of knowledge.

Using this simple proposition as a springboard, great avenues of research are opened to the curious. Meaningful questions beg answers, including: "What is and what is not knowledge?," "What is the individual effect of knowledge?," and "What are the collective social effects of knowledge?" Obviously such sweeping questions cannot be answered in a limited research context. The last query, however, carries monumental implications, and it is this question that will be herein pursued.

Before proceeding further, some definitional guidelines should be established. As can be seen later, the specification of the term "know-ledge" is somewhat encumbered through the earlier uses by its application to virtually everything non-materially social from ideas to ideologies. It is surprising that writers of the stature of Kurt Wolff, Robert K. Merton, and Irving Zeitlin use the term freely without

definition. Curtis and Petras (1970:1) recognized the nature of the problem when they wrote:

In a sense, the sociology of knowledge in the field of soiology is analogous to the concept of attitude in social psychology. Although each concept occupies a central position in its respective field, both suffer from the lack of precise definition.

As a result, the range of definitions may leave the uniniated wondering where the true field lies. A sampling may be seen in the following.

Berger and Luckmann (1966:13) define the subject too broadly for a narrow research approach, specifying that, "The sociology of knowledge must concern itself with everything that passes for 'knowledge' in a society."

Broader yet is Mannheim's (1952:109) definition which maintains that the sociology of knowledge, "... seeks to analyze the relationship between the knowledge and existence." Better for research is Coser and Rosemberg's definition (1964:667), the sociology of knowledge is that branch of sociology which "studies relationships between thoughts and society," and Merton's (1957:456), the sociology of knowledge is "...

[a] concern with relations between knowledge and other existential factors in society." Adler (1957:396) even found it necessary to locate the sociology of knowledge in the field of science, saying:

The sociology of knowledge . . . is a branch of science. It deals with the socio-cultural factors associated with thought and its various forms of expression. The sociology of knowledge consequently overlaps with the sociologies of religion, of art, of literature, of law, of politics, . . . of relations between knowledge and religion, . . . [and] the relation of linguistic behavior to cognitive behavior.

Adler's definition is a general definition of the sociology of knowledge sufficient to provide a conceptual umbrella for the plethora of interests and concerns of the sociology of knowledge

A precise and non-ideological definition of knowledge, although

differentiated, is found in <u>Webster's Third New International Dictionary</u> (1961:1252-1253). It reads:

Knowledge applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds . . .

Science still sometimes interchanges with knowledge but commonly applies to a body of systemitized knowledge comprising facts carefully gathered and general truths carefully inferred from them, often underlying a practice, usually connoting exactness, and often denoting knowledge of unquestioned certainty . . . Learning applies to knowledge gained by study, often long and careful and sometimes connoting comprehensiveness and profundity . . .

<u>Information</u> generally applies to knowledge, commonly accepted as true, of a factual kind usually gathered from others or from books . . .

A sociological definition by Bottomore (1956:56) restricts the meaning of knowledge sufficiently so that it could serve as a focus of research:

Knowledge . . . includes true and false beliefs, as well as beliefs which are neither true nor false; these distinctions are for philosophers, not sociologists to make.

For purposes of this research, however, the two definitions allowing maximum flexibility are taken from Boskoff and Bottomore. Boskoff (1969:08) writes:

. . . we might best describe this area in terms of two components—(1) a <u>core</u> of basic questions, problems, and objectives (the major orientation of the sociology of knowledge); and (2) a quite fluid <u>periphery</u> of specific theoretical problems, techniques, and marginal studies that may be interpreted as clarifications and extensions of the core. . . they tend to correspond, respectively, to the 'European' and 'American' versions of the sociology of knowledge.

Bottomore (1956:56) yields an operational definion of the sociology of knowledge in very Marxian terms:

The sociology of knowledge, then, is the study of the relations between the constructs of reflective thought and social structure, that is, between such constructs and social groups (occupations, communities, etc. as well as social classes), institutions and total societies.

Finally, numerous terms will be defined as they appear contextually.

The Problem

The general focus of the sociology of knowledge has traditionally revolved about a pivotal assumption--knowledge as a product is group conditioned. Consequently, the question the researchers have attempted to answer has been, "Can the presence of a known body of knowledge be demonstrated to have measurable effects on a group, assuming all other factors to be equal?" This, essentially, is the problem to be researched here. It will be demonstrated later that an attempt to concentrate on the effects of knowledge on groups run counter to most research. The trend, to date, has been to center upon group effects on shared knowledge (usually only ideological in context).

The problem to be discussed may be stated in the following terms:

New members of a limited and known population will be studied to measure hypothesized effects on the social system of a known body of information. Since the body of information circulates almost exclusively among members of the object population, a nearly closed knowledge system can be presumed for purposes of analysis. The production and transmission of this information is of secondary interest and will be so treated. With this simple overview it can be seen that such a study is exploratory but researchable in nature. The sociology of knowledge has been, as a field, almost forgotten in the proliferating applications of empirical methods to heretofore philosophical pursuits. It is hoped that this type of research can aid in the reversal of this trend.

The following study is organized into five parts. The section entitled "Theoretical Requirements of an Empirical Sociology of Knowledge" seeks to establish a minimal theoretical grounding necessary for meaningful research. It demands the creation of an empirical reference point

vis-a-vis knowledge consumption. The "Review of the Literature" sketches the specific research available in the field. Included are studies of the social effects of knowledge and knowledge systems. The "Research Methodology" section details the source of the data, instruments of measurement, and procedures of the research design. The "Analysis of the Data" section describes the findings resulting from the measurements and comparisons. Finally, the "Summary and Conclusions" briefly interpret the findings. The appendices and working bibliography appear at the conclusion of the study.

CHAPTER II

THEORETICAL REQUIREMENTS OF AN EMPIRICAL SOCIOLOGY OF KNOWLEDGE

The Development of the Sociology of Knowledge

The birth of the sociology of knowledge is subject to some question, for it developed in many locations over an extended period of time. Some date its origin with the philosophers of the Enlightenment, others from Comte's famous "law of the three stages," although the Comtean assertion of a social structure-source of knowledge link is highly tenuous. Moreover, the modern sociology of knowledge is a product of at least three distinct traditions. These schools will be traced from their origins and examined in their present contexts.

The Marxians

The first of these schools of thought concerns itself with issues involved in "historicism" or the "philosophy of history." Of this school, the immediate precursor was Marx; the Marxian view revolved about an hypothesis summarized by Marx and Engels in The Gommunist Manifesto (1961:31) in these terms:

What else does the history of ideas prove, than that intellectual production changes its character in proportion as material production is changed? The ruling ideas of each age have ever been the ideas of its ruling class.

The remarkable simplicity of the Marxian theorem -- that material gives

rise to non-material--probably accounts for its wide application by scholars. Indeed, as Wolff (1959) points out, most of what passed for the sociology of knowledge during its German zenith in the 1920's was either a defense or a refutation of Karl Marx. Apart from concerns with the problems of "historicism," Marx's lasting contribution resulted from his concern with ideologies and alienation, for Marx felt that the working man was a captive of ideological thought in the forms of theology, the State, and capitalism. He saw himself as dedicated to unmasking these captivating forms when in 1844 he wrote:

The immediate task is to unmask human lienation in its secular form, now that it has been unmasked in its sacred form. Thus the criticism of heaven is transformed into the criticism of earth, the criticism of religion into the criticism of law, and the criticism of theology into the criticism of politics. (Marx, 1956:53)

The Marxian notion of ideology profoundly affected European sociology, although the European sociology of knowledge would steadfastly ignore another Marxian belief--that the physical and social sciences are free from ideological contamination--and would ultimately unite into a "true" science. Bottomore (1956:56) attributes to Marx the statement that, "Natural science will one day incorporate the science of man, just as the science of man will incorporate natural science; there will be a single science." Such positivistic extremism ran counter to the mainstream of subsequent European sociology of knowledge advocates. Most important, the Marxist school never surmounted the problem engendered by its own contention that ideology and knowledge are rooted in social structures. Thus, the Marxists' concern with "relativity" developed from their application of ideology as a weapon and a shibboleth. Light (1969:192) paraphrases their dilemma when he wrotes:

The validity of a given set of ideas could easily be challenged by calling attention to the social position and interests of its adherents. But this type of determinism posed an unshakeable dilemma: If the root proposition of the sociology of knowledge--a one-to-one correspondence between knowledge and social position--was valid, then the sociology of knowledge was itself simply a reflection of the position and interests of its claimants.

Correspondingly, sociology of knowledge advocates came to depend increasingly upon philosophical proofs and logical discourse to buttress their arguments. Only in the American sociology of knowledge, created in the last decade, would Marx's desire for an empirical sociology of knowledge be approached.

The role of Karl Marx in the development of the sociology of knowledge is best summarized by Rapoport (1964:101) when he writes:

The idea of the sociology of knowledge was, I believe, Marx's greatest contribution. It will endure long after his economic theories (sophisticated in his day but primitive in the light of contemporary knowledge) and the sociological theory which bears his trademark (the class struggle) have become historical curiosities. The sociology of knowledge is to society what the psycho-analytic conceptualization of the unconscious is to the individual.

Even so, it is likely that more plaudits will continue to be awarded to the limitators of Marx than to the theorist himself.

Mannheim borrowed heavily from Marxian theory in order to explain collective attachments to ideologies. Marx had defined "ideologies" as mainly lies and deceptions manipulated by the privileged boureoisie to defend class privileges. "False consciousness," then, was said by Marx to result from any acceptance of ideologies at odds with class interests. Marx and his followers claimed "true consciousness" in the form of perceptions undistorted by class interests. Recent reinterpretations of Marx's theory of consciousness by Remmling (1967:152) and others suggest a view of false consciousness as a product of worker alienation resulting

in beliefs and ideology systems not grounded in reality and acting upon man's imagination.

The impact of this view is far-reaching, for it holds that the problem of the absolute relationship of thought to social structure cannot be resolved by attempts at "objectivity," even in areas such as history. Hegel (1954:13) defined the problem by saying:

Even the average and mediocre historian, who perhaps believes and pretends that he is merely receptive, merely surrounding himself to the data, is not passive in his thinking. He brings his categories with him and sees the data through them.

Mannheim saw the problem as a two-pronged one. First, that all knowledge was socially relative to the group that produced or conditioned it; and second, that the scientist could never be free of his own group influences and was thus prevented from knowing any pure knowledge. Mannheim accepted the dictum that no group produced ideas apart from their social context, although he thought the greatest likelihood to do so rested in a group of "free-floating" intellectuals (the intelligentsia of society). The idea of a freischwebende intelligenz or a "socially unattached intelligentsia" was not, however, originally from Mannheim, for, as Berger and Luckmann (1966:10) point out, Mannheim borrowed the term from Alfred Weber. Beyond this curiously naive proposition, the contributions of Mannheim have been sizeable, for it was principally through the translation of Mannheim's writings that non-German audiences were first exposed to the sociology of knowledge. Best known is Mannheim's ideology and Utopia (1936), in which systems of thought are said to mirror the perspectives of particular groups, thus allowing an interplay between Mannheim and Marx's social class consciousness theory. Mannheim distinguished two systems of social thought -- ideologies (ways of masking the truth resulting from desires for equilibrium and stability) and

utopias (ways of thinking that arise in opposition to prevailing thought not directly reflecting socio-cultural environments, since they manifest tendencies toward "wish-fulfillment"). At issue in this vision is an understanding of the means by which individuals interpret social reality. That is, it may be said that every group utilized utopian thought systems to order the realities they perceive. A utopia is true and valid if it can realistically subvert or overthrow the prevailing thought system (the ideologies). If it has no real likelihood of doing so, a utopia may become simply another ideology for purposes of controlling the believers. Unlike Marx, Mannheim was willing to concede that other realities might also be valid, rather than simply attributing "true consciousness" to Marxians and "false-consciousness" to all who disagree.

Mannheim's (1936:264) definition of the sociology of knowledge has been widely quoted by historically-minded researchers. It reads:

. . . as theory it seeks to analyze the relationship between knowledge and existence; as historical-sociological research it seeks to trace the forms which this relationship has taken in the intellectual development of mankind.

It is easy to see in Mannheim the reflection of the Marxist historicism frequently criticised as reductionism, as well as his attempt to escape from the accusation of "relativism" by calling it "relationism."

The contributions of Mannheim are numerous, the most significant being that he brought the sociology of knowledge to the broad academic community. A sympathetic and knowledgeable treatment of Mannheim's theories may be found in Zeitlin (1968: 281-320).

Another latter-day Marxist who exhibited a profound interest in the sociology of knowledge was C. Wright Mills. Vitally interested in the philosophy of science, Mills saw the problem of the sociology of

knowledge as central to the pursuit of sociologists. In Mills' (1946) study of the ideological identifications of middle-class Americans, he concluded that middle-class businessmen maintained a strong identification with big-business and its ideologies. Such a stance, at odds with immediate self-interests, was akin to the Marxian descriptions of "false consciousness." A similar analysis was later performed by Mills in White Collar (1951). An excellent picture of Mills' views appears in "The Scientific Relevance of C. Wright Mills" by Rapoport (1964).

The products of the wide-spread discussion of Marxian causality are numerous, and only a small sampling is required to demonstrate its inter-disciplinary effects. Thorstein Veblen (1918) took great pains to point out the inter-relatedness of cultural values and intellectual activities. In history, James Harvey Robinson (1921) took the lead of Mannheim in understanding the social origins of knowledge, while Charles A. Beard (1934) is widely known in both economics and history for his analyses of objective knowledge as a product of economic sub-structures.

It was at the Marxian juncture, however, that the most popular notion of the real speciality of the sociology of knowledge was introduced —the history of ideas. Rooted in the concept that the source of ideas and knowledge resides with social groups (social classes, elites, philosophers, etc.), the proponents of this branch of study attempted to trace ideas from their current development to their sources, examining en route their growth and changes. Never claimed by history and widely disavowed by positivist sociology, the pursuit of the history of ideas existed in an intellectual limbo before seizing upon the sociology of knowledge label to grant legitimation to its endeavors. No longer widely seen as a legitimate goal of sociological research, the sociology

of ideas is frequently seen as a descriptive tool used in connection with other methods and procedures.

The Phenomenologists

In other areas of the sociology of knowledge Marx is said to have sired the study of reality constructions with his preoccupations with religion's role in the social order. Zeitlin (1968:278) observes that Marx attributed to religion a <u>false reality</u> construction, often used for purposes of control. However, "phenomenology" is generally regarded less as a school of thought than a procedure for analysis in which the researcher attempts to temporarily suspend all epistemological assumptions in order to more completely describe social situations. MacLeod (1968) states, "It is in phenomenology that the sociology of knowledge has found its firmest links with philosophy; for, overshadowing phenomenology is a desire to grasp the nature of social reality.

The popular works of Max Scheler, called by some the "Father of the Sociology of Knowledge" (Curtis and Petras, 1970:16), attest to the rise of the second major tradition in the sociology of knowledge. Predating only slightly the publication of Mannheim's <u>Ideology and Utopia</u> (1936) was Scheler's "Problems in the Sociology of Knowledge" (1924). Becker and Barnes (1938:923) attribute Scheler's interest in the sociology of knowledge to his religious preoccupations, principally his belief that "Lutheranism arose primarily because the German princes did not wish to send a substantial part of their revenues south of the Alps." A critic of Marx, Scheler utilized a phenomenological orientation in his attempts to remake the sociology of knowledge into a form of cultural anthropology. Essentially concerned with the nature of social knowledge, Scheler

served as the intellectual precursor of the phenomenological sociology of knowledge, later developed by Alfred Schutz and Peter Berger. Staude (1967) skillfully traces the intellectual and academic development of Scheler until his death in 1928. Staude attributes to Scheler a frustration at the middle class's economic success and political impotence in Wilhelmian Germany. Scheler's admiration of the aristocracy and his disdain for individualism and utilitarianism lead him to refute science as a source of true knowledge and to reorder the authorities he saw governing society. As Mannheim had explained the Marxian concept of ideology to encompass all thought, Scheler used Marxian perceptions of ruling elites to generalize about all eras.

Whereas Marx had attributed ideologies to economic and class roots, and Mannheim to a wider assortment of groupings, Scheler was even less restrictive. Scheler saw no stable source of ideas in human history; rather, he described a sequence of "real factors" which he said set up the necessary conditions for its production. These "real factors" which he described in detailed terms related to the degree of complexity of the society involved. Thus, the "real factors" in primitive society must be kinship affiliations while religious, political, and economic factors suffice in more complex societies. Scheler went a step further when he maintained that there exists an absolute order of values and ideals upon which certain individuals and groups may draw at those points in time when their proper "real factors" are present. The metaphysical bent of Scheler's writings reflected, as Staude (1967:167) details, ". . . his old desire to destroy the prevailing cult of science as the ultimate norm of true knowledge." Further, his antipathy toward positivists lead Scheler to attack Durkheim (as seen in Staude [1967:166]) because:

Durkheim completely failed to do justice to the actual nature of religious and metaphysical thinking, and therefore he could not properly understand the influences of social forms on religious and metaphysical systems.

Nevertheless, Scheler's writings laid the theoretical groundwork for an entire phenomenological approach to the sociology of knowledge, the result being to occasion a collection of writers who have expended great effort to understand the effects of material and non-material environment on constructions of social reality.

The premature death of Ernest Grunwald at the age of twenty-one, resulted in his written materials remaining largely untranslated from the native German. Grunwald's early volume dealing directly with the sociology of knowledge (edited posthumously) is still translated only in part; two of his essays appear in Curtis and Petras, The Sociology of Knowledge: A Reader (1970). Grunwald there details his attempts to place the sociology of knowledge in a framework consistent with empirical fact and method while remaining consistent with Kantian concepts of causality. While he occasionally refers to the sociology of knowledge as a "science of reality," he is elsewhere less specific, as when he writes (Curtis and Petras, 1970:190):

. . . the sociology of knowledge . . . is a <u>Geisteswissenschaften</u> whose subject has something to do with knowledge, cognition, and thought.

The reason for this is that Grunwald was sincere about leaving the defining of the sociology of knowledge open-ended, often hinting that it might be more correct to use the term "sociology of culture." He did, however, reject Lehmann's (1931:284) unbounded definition which holds that the sociology of knowledge is:

• • • science of the knowledge of the social (society as nexus of meaning and as imparting meaning), in so far as that knowledge is knowledge of culture and an expression of culture.

The basis of his rejection was Grunwald's feeling that a genuine sociology of knowledge must integrate a positivist method with phenomenological interests in multiple realities in order to probe the connections
and relevancies of societal membership. He opts for a positivistic
stand because he rejects Mannheim's "relationism" as a perspective, saying (Curtis and Petras, 1970: 240):

The 'middle ground' between relativism and absolutism on which relationism stands thus turns out to be an illusion. Relatiism and absolutism are contradictory opposites with no more 'middle ground' between them than exists between true and false, yes and no.

The contribution of Grunwald was to sharpen definitions and demand a clarification of concepts, a procedure badly needed in the sociology of knowledge today.

To Alfred Schutz should go much of the credit for bringing the phenomenological sociology of knowledge out of the metaphysical arena and into sociological contexts. Schutz' best work remains his 1932 book, <u>Der sinnahafte Aufbau der sozialen Welt</u>, only recently published in English (1967) as <u>The Phenomenology of the Social World</u>. In this book many previously vague concepts of phenomenology are clarified, as well as an attempt made to bring Max Weber into phenomenological focus. Calling his approach "interpretative sociology," he says (1967: 248):

The primary task of this science is to describe the processes of meaning-establishment and meaning-interpretation as these are carried out by individuals living in the social world.

Schutz made an enormous conceptual leap when he advocated the removal of the focus from universal ideation systems. Instead, he suggested the study of concrete perceptions of phenomena by real (and common) people in society, or what Mannheim called the "pre-scientific, inexact mode of thought" (1936:2). Schutz (1967:219) approached the modern empirical

position when he wrote:

The greater art of the sociologist, consists in his attempt always to relate changes in mental attitudes to changes in social situations. The human mind does not operate in vacuo . . .

The insistence by Schutz that symbols play a key role in an analysis, points in the direction of Durkheim's positivistic linguistics (recently revived as a branch of anthropological "ethnomethodology") and Mead and Cooley's social psychology.

The prominence of Schutz and his role in the development of a sociology of knowledge perspective in social research has been enhanced in recent years. In 1970, Social Research dedicated an issue to Schutz (see "Essays in Commemoration of Alfred Schutz," Berger, 1970) containing excellent reviews of Schutz's phenomenological approach applied to social change, international politics, and the mass media in Japan. Natanson (1968) provides the finest brief synopsis of Schutz's theories and his significance to social science.

A pivotal book, The Social Construction of Reality by Berger and Luckmann (1966), serves as a transitional work, successfully bridging the gap between phenomenology and modern sociological perspectives. Berger and Luckmann attempt to lay sufficient theoretical groundwork to allow empirical research into the process by which society creates a transcendent definition of objective reality. The real beginnings of such a definition, they say, are rooted in the problem-solving subjectification (meaning attachment to cultural elements) by individuals. The broader acceptance of attached meanings results in acceptance by society in everyday life of the elements' meaning as objective reality. Children are thereafter socialized to accept this meaning as objectively real, lending legitimation to such organizational components as social

institutions and behavior. Berger and Luckmann reject the kinds of know-ledge suggested for study by Durkheim, Gurvitch, or Machup to create their own dichotomy of important knowledge: knowledge of everyday or commonsense things used by individuals in conducting their daily affairs. Like Alfred Schutz, the authors concede primary significance to this brand of knowledge, saying that while all such knowledge is not duplicated by members of society, there are certain areas of overlap. Thus (Schutz, 1967:15),

. . . the sociology of knowledge must first of all concern itself with what people 'know' as 'reality' in their everyday non- or pre-theoretical lives. In other words, commonsense 'knowledge' rather than 'ideas' must be the central focus for the sociology of knowledge.

Yet for the member of society relying upon this form of thought there are two limitations that perforce transform it into theoretical knowledge. First, that commonsense knowledge must be transferred to succeeding generations, and second it becomes manifestly unsatisfactory as a tool for generalizing about matters of wider scope such as human motivation and social causation. Thus, the second kind of knowledge described by Berger and Luckmann consists of: the institutional legitimations of reality constructions. Legitimations from the church, the schools, and similar sources are theoretical in nature and much less specific than everyday knowledge, for it need not necessarily be specific in order to serve its principal purpose--relating everyday existence to a broader universe.

Since Berger and Luckmann reject the Marxist concept that the sociology of knowledge should simply study social perceptions rooted in objective social positions, they opt for a study of the <u>process</u> by which knowledge is created, questioned, and discarded. Such an approach neatly blunts the relativism of Marx which Mannheim's "relationism" failed to resolve. Berger and Luckmann have not, however, created an impregnable position, for at least one reviewer, Light (1969), faults the authors for their conservatism, saying that they used Comte's assumptions about knowledge to derive their theory. More fundamentally, Light accuses Berger and Luckmann of using the wrong point of origin for the analysis of change. Berger and Luckmann maintain that periods of calm and certainty result from widespread acceptance of institutionalized definitions of objective reality that protect them from what the authors call the "onslaught of nightmare" (1966:102) or being forced to admit that reality definitions are indeed arbitrary. A cycle occurs when the public begins to doubt old definitions; a period of anxiety ensues, and the uncertainty is resolved when a new motif is installed to explain existential reality, be it theological, metaphysical, rational, scientific, etc. Light says that Berger and Luckmann perceive of periods of stability temporarily disrupted by uncertainty, while Light maintains that the period of uncertainty has been the most productive and meaningful, suggesting a "sociology of uncertainty" (1969:195) as an alternative. Despite his criticism, Light offers the best critique of The Social Construction of Reality when he writes (1969:197):

. . . what is the moral of Berger and Luckmann's story? It is that objective certainty in human cognition is an illusion, that knowledge is in a constant process of evolution.

The contributions of Berger and Luckmann to the sociology of knowledge have been recognized to consist of (1) the formulation of conceptual tools for treating abstracted and difficult problems and, (2) the incorporation of social psychology and empiricist sociology under the sociology of knowledge banner.

Appearing at approximately the same time as Berger and Luckmann's book was Reality Construction in Society by Holzner (1968). Little used, Holzner's theoretical efforts are ambitious indeed, for he desires to integrate the study of reality construction into a general social systems approach. He writes in the preface (1968:i), "Throughout the book the concept of 'social system' is of central importance."

A concern with understanding the mechanics of reality constructions has encouraged many new perspectives. Chapman (1971) posits the view that the materials for the construction of social reality are (contradictory to Scheler) infinite, including magic, religion, rationality, science, and myth, to name but a few. The broader uses of such an understanding can be seen when Chapman (1971:1) writes:

The task of sociological theory is to explain the many ways in which reality is socially structured and restructured, so that as far as possible a general understanding of the bases of social thought and action may be achieved.

Psychologist George A. Kelly (1956) made novel use of such a technique in psychoanalysis based on the principle (Sahakian, 1969:358) that:

. . . Psychotherapy is a matter of reconstruction, replacing ineffective constructs [of reality] with suitable ones, replacing threatening constructs with compatible constructs.

Further recent developments include the creation of psycho- and sociolinguistics techniques and the wedding of symbolic interactionism with reality construction research.

The phenomenological frame of reference has developed into a standard conceptual tool in sociology, being applied to all manner of sociological problems. Sjoberg and Nett (1968), Circourel (1964), and Denzin (1970) present the problems of research methodology in a sociology of knowledge perspective, Denzin including readings by a broad range of theorist/methodologists under the umbrella of the sociology of knowledge.

Textbooks are appearing in profusion with allusions to the meaningful interpretations of constructions including Reynolds and Reynolds (1970), Douglas (1970), Tiryakian (1971), Phillips (1971), and Horowitz and Strong (1971).

The Empiricist

A third major tradition in the sociology of knowledge concerns itself with the understanding and measurement of the direct effects of knowledge. The modern form of this branch is distinctly French and American, and has attained its most significant success in utilizing a sociology of knowledge framework as a tool for the analysis of other substantive areas.

It is to Immanuel Kant that this area owes its perspectives, for until the appearance of Kant, the philosophical and scientific world had been wrestling with the opposing doctrines of empiricism versus rationalism. The empiricist held that the source of all knowledge was sensory experience, while the rationalist held that scientific knowledge could never arrive via the senses, resulting in the assumption that scientific knowledge was the product of reason. Kant attempted to synthesize the two approaches, resulting in his primary question—Is knowledge based on a priori cognition, pure reason, or obtained by sensory experience? Selecting from each argument only what he considered valid, Kant arrived at the epistemological problem summarized by Remmling (1967:57):

How can statements derived neither from experience (i.e. judgments a priori) nor from logical inference (analytic judgments) attain the status of objective knowledge (synthetic judgments)?

Kant was working toward a resolution of ontological and phenomenological bickering in order to arrive at an understanding of reality. His problem

was compounded because, even if one accepts an absolute ongoing reality (a noumena), the process of conceptualization makes it the product of epistemology (phenomena). Noumena cannot enter the mind except as phenomena, for the thing in itself cannot enter the mind. Kant located reality in the mind such that the object is recreated (although not materially) in the mind of the human observer. The rational knowledge of absolute reality is impossible, and for the sociology of knowledge the task (outlined by Mannheim's reformulation of Kantian thought) is to understand that knowledge is filtered through the perceptional senses of the individuals. Mannheim writes (1936: 269):

The world is known through many different orientations because there are many simultaneous and mutually contradictory trends of thought . . . struggling against one another with their different interpretations of 'common' experience. The clue to this conflict, therefore, is not to be found in the 'object in itself' (if it were, it would be impossible to understand why the object should appear in so many different refractions), but in the very different expectations, purposes, and impulses arising out of experience.

Such a viewpoint aiming at the existence of multiple realities is an empiricist foundation of significance. It legitimates the study of attitudes, values, ideas, opinions, other expressions of group viewpoints, and all other phenomenological elements so reified, because they are thus, the reality perceptions serving as the behavioral basis.

The scientific father of this branch is generally held to be Emile Durkheim. Durkheim's sociology of knowledge contributions came about as he probed the origins of typologies among pre-literate social organizations, concluding that the classifications were reflections of the social structure extant in the society (see Durkheim and Mauss, 1903). While he failed to establish the sources of social classifications in primitive life or later in complex society (Durkheim, 1954), he did

serve to encourage others to engage in empirical pursuits; the bulk of his imitators were anthropologists and ethnologists.

Always interested in religion, Durkheim was further lead to question the nature of knowledge as a binder of society. That is, that there are certain kinds of social knowledge about which there is no freedom of choice or rational options. He lumped these kinds of knowledge into categories and exhorted his followers to discover the social manifestations of them. Durkheim divided theorists (about knowledge) into two kinds: (1) a priorists who assume social knowledge to be given and unquestionable, and (2) the empiricists who see all knowledge as researchable. His categories of social knowledge would, he claimed, satisfy both groups, saying (1954:19):

The categories are no longer considered as primary and unanalyzable facts, yet they keep a complexity which falsifies any analysis as ready as that with which the empiricists content themselves.

Duckheim's position on the subject was suggested when he wrote (1954: 20):

• . . to succeed in understanding them and judging them [his categories of knowledge], it is necessary to resort to other means than those which have been in use up to the present.

Although writings on the subject of knowledge comprise only a small portion of Durkheim's total output, a clear picture of his perceptions of the effects of the socio-historical and socio-cultural environments on thought may be obtained in his book, The Elementary Forms of the Religious Life (1954). Durkheim's preoccupations with classifications of knowledge did result in a spin-off in the form of recurring attempts to classify kinds of knowledge, extending to very recently. Bottomore (1956:56) evidences such an effect when he states that, "The first step

towards an empirical sociology of knowledge must be a classification of types of knowledge." Such categorizations include that performed by Gurvitch (1956:56), who stressed that the kinds of knowledge he saw extant had received grossly unequal amounts of study and research, including: perpetual knowledge of the external world, knowledge of other persons and groups, commonsense knowledge, technical knowledge, political knowledge, scientific knowledge, and philosophical knowledge. Machup (1962:21-22) details his own list of knowledge classes divided into five main categories:

- (1) Practical knowledge: useful in his work, his decisions, and actions; can be subdivided, according to his activities, into:
 - a. Professional knowledge
 - b. Business knowledge
 - c. Workman's knowledge
 - d. Political knowledge
 - e. Household knowledge
 - f. Other practical knowledge
- (2) Intellectual knowledge: satisfying his intellectual curiosity . . .
- (3) Small-talk and pastime knowledge: satisfying the non-intellectual curiosity . . . light entertainment and emotional stimulation . . .
- (4) Spiritual knowledge . . .
- (5) Unwanted knowledge . . .

Yet no matter how exhaustive the listing, the frustrations of Durkheim recur, for nowhere can the range of human thought be categorically listed.

The most lasting contribution of Durkheim has been to inspire other empirical analyses, without which, the sociology of knowledge might still founder in the quagmires of philosophical relativism. An example includes Florian Znaniecki's <u>The Social Role of the Man of Knowledge</u> (1940:

318), wherein he asks:

Are the systems of knowledge which scientists build and their methods of building them influenced by the social patterns with which scientists are expected to conform as participants in a certain social order and by the ways in which they actually realize those patterns?

In <u>Cultural Reality</u> (1919), Znaniecki dealt with the philosophical impact of relativism. In Chapter III are presented numerous examples of specific studies utilizing the most rigorous of methodological tools, all heir to the Durkheimian tradition in the sociology of knowledge.

One of the most profound effects of this branch of the sociology of knowledge is that which affected the American behaviorist school of sociology and pragmatists in psychology. Typical of the latter is John Dewey, whose contributions have been but recently recognized (see Curtis and Petras, 1970). Influenced by the French school of social psychology and positivist sociology, Dewey was concerned with the influence of the group on the individual mind. In essense, Dewey reiterated the ideas of Durkheim that no individual can be free from the powers of the "collective reality" encompassed by the group mind, and further excluded all forms of consciousness not gained through thought. Thus, said Dewey, the human mind (through language) mediates the individual's relationship with ontological reality. Language is naturally seen as indispensable to the process; the suggestion being that the researcher should seek to understand the processes of language. Characteristic of Dewey's philosophy of knowledge is German Philosophy and Politics (1915), and Reconstruction in Philosophy (1920).

William James, one of the founders of American pragmatism is representative of that body of philosophers in his era who were very much concerned with the construction of social reality. James realized that

although individuals integrate their perceptions of reality, there are, in fact, many categories of reality and non-reality or illusion. The individual mind treats these through a form of compartmentalization, for James (1952:641) says:

. . . within the world of absolute reality . . . there is the world of collective error, there are the worlds of abstract reality, of relative or practical reality, of ideal reality and there is the supernatural world. The popular mind conceives of all these sub-worlds more or less disconnectedly; and when dealing with one of them, forgets for the time being its relations to the rest.

James later describes and enumerates a number of sub-universes of reality which, he said, the psychologist should be charged with understanding. He lists the following sub-universes of reality (1952:641-642): (1) sensory experience or physical reality; (2) science and similar explanatory constructions; (3) "ideal relations" in the form of logic, mathematics, etc.; (4) the "world of 'idols of the tribe'" or illusions common to race and group; (5) supernatural worlds of all religious bents; (6) "various worlds of individual opinion, as numerous as men are;" and (7) "the worlds of sheer madness and vagary, also indefinitely numerous."

A cultural element becomes real, says James, when emotionally active interest is directed toward it. Thus, the role of emotion is key in James' theory of reality construction, an element often missing in overly rational descriptions of many theorists. We tend, according to James, to temporarily shift from one sub-universe to the other throughout our lives, and as each is taken as real, each sub-universe is genuinely regarded as real. Reality is in the minds of the individuals, and the social scientist who concerns himself with an ongoing ontological reality beyond that of the individual is engaging in largely wasted

activity. Such a concept comprises a common thread in the writings of reality constructionists, from Durkheim to Berger and Luckmann.

Another of the school's founders is George Herbert Mead. His view that the "self" is created through the mediation of "significant symbols" yields the conclusion that the self-concept, above and beyond intellectualized learning, is inexorably linked to the social environment. In "Society as Symbolic Interaction" (1962), Herbert Blumer outlines the operational premises by which Mead explained social actions. Present always, says Mead, is a body of social and scientific knowledge to which the individual must respond (including customs, traditions, manners, and norms, etc.) and upon which he bases his actions. In doing so, the individual interprets knowledge relative to his unique personal situations. Much knowledge is internalized with little interpretation, but some forms demand extensive interpretation. The mind is seen only as it manifests itself in action, for only in acts between individuals is the mind observable. Mead states in his classic Mind, Self, and Society (1934:156) that the development of social knowledge is a direct and obvious function of the process of "self"-creation. He writes:

The self-conscious human individual, then, takes or assumes the organized social attitudes of the given social group or community (or of some one section thereof) to which he belongs, toward the social problems of various kinds which confront that group or community at any given time, and which arise in connection with the correspondingly different social projects or organized co-operative enterprises in which that group or community as such is engaged; and as an individual participant in these social projects or co-operative enterprises, he governs his own conduct accordingly.

This is a social behavioristic restatement of a Marxian concept. The impact of Mead is that he formalized a number of presuppositions in the sociology of knowledge and social psychology, upon which he, and later Blumer, constructed theories of symbolic interactionism. A synopsis of

Mead's inputs may be seen in "The Contributions of George Herbert Mead to the Sociology of Knowledge" by McKinney (1955).

Of his intellectual inspiration, Charles Horton Cooley is said to have most admired Darwin's patient empiricism and James' open pragmatism among all the writings he encountered (see Angell, 1968). His early work on ecological influences conditioned his later work on psychosociological causation, and while principally concerned with the manner in which social individuals create self-concepts and how societies organize, Cooley went out of his way to emphasize the role of social experience and knowledge on human behavior. In "Genuis, Fame and the Comparison of the Races" (1897), Cooley stressed that society and its knowledge (in contrast to Galton's prevailing eugenics theories) produced great men. Most useful in his article on "The Roots of Social Knowledge" (1926) in which, after differentiating between social and material knowledge, the author (Gooley, 1926:60) describes social knowledge as:

. . . sympathetic, or in its more active forms, as dramatic, since it is apt to consist of a visualization of behavior accompanied by imagination of corresponding mental processes.

Cooley's definition is consistent with his theories of socialization, and social action, as well as recent dramaturgical social definitions (see Goffman, 1959). Further, he considers the process of objectification when he writes (1926:61) that social knowledge is ". . . quite as useful [as material knowledge] in the everyday affairs of life, and quite as universally accepted as real by common sense." The source of this social knowledge, he stresses, is the reciprocal interactions that collectively equal socialization. Thus, the psycho-socio-physical responses to the environment may be taken as a principle source of social knowledge. Cooley stresses that this is only a partial awareness of

whole human beings and a partial construction of reality. Although aware of the fact that all knowledge is subjective (so far as it is not ontological), Cooley fails to make the Marxian connection—that knowledge is a function of underlying social structures. The reason for this is that Cooley, by his own definition, is a behaviorist. The implication is that Cooley would not busy himself with what cannot be observed, and yet, Cooley cannot be so easily written off, for he uses Herodotus's accounts to point up the differential cultural uses of knowledge (see Cooley, 1926:71-72). Further, in the analysis of the ordinal evaluations of statistical, scientific, and other kinds of social knowledge, Cooley points out that the functional accuracy of knowledge is determined by society's acceptance of it. While Cooley's writings include many leads, his contributions suffered from his failure to pursue a systematic theoretical construction.

The contributions of structural-functionalism to the sociology of knowledge have been spotty and uneven. Despite his classical German education, the leading exponent of systemic-functionalism, Talcott Parsons has written only one short treatise on the subject. In An Approach to the Sociology of Knowledge (1959), Parsons quickly rules out Scheler, Mannheim and the German idealists as being either dichotomous in their thinking, or "unscientific." Rather, he sees the sociology of knowledge as modeled properly after Max Weber's objectivism and Durkheim's concerns with collective mentalities. He curiously compares his theoretical stance with that of Werner Stark (1958) who subtitles his book, "An Essay in Aid of A Deeper Understanding of the History of Ideas," and suggests that the real issue is "absolute" truth, a sociology of knowledge is a

distinct attempt to renounce the pain of relativism in favor of the comforts of absolutism. Yet Parsons never explains this incongruity or how he links his theoretical view with that of Stark. What Parsons does is to place human action in a mechanistic system constituted of systems isomorphic at every level of analysis--envisioned as a pyramid consisting of culture, society, personality, and organism. While he suggests that the study of reality constructions would be valuable, Parsons says that the real subject of the sociology of knowledge is the study of the social functions of ideology. He lists these functions as (1) the maintenance of role commitments by individuals, (2) facilitation of the broad acceptance of 'men of knowledge,' and (3) the establishment of a common highlevel ground for ideological debate, all the while granting pre-eminence to the first (see Parsons, 1959: 45-46). Parsons' stress on institutionalized value-relationships in the social system of Parsons' world results in an absence of any empirical effort to study "meaning" as perceived by the society and individuals.

Robert K. Merton, on the other hand, is generally credited with the stimulation of American discussion of the sociology of knowledge when, in his major work Social Theory and Social Structure (1957), he devotes two chapters to the sociology of knowledge, the principal one entitled, "Paradigm for the Sociology of Knowledge." In this chapter, Merton interprets the sociology of knowledge as a response to four questions:

(1) "Where is the existential basis of mental productions located?

..." [that is, social and cultural bases], (2) "What mental productions are being sociologically analyzed? ..." [spheres of moral beliefs, ideologies, ideas analyzed in terms of levels of abstractions, presuppositions, etc.], (3) "How are mental productions related to the

existential bases? . . ." [through causal, symbolic, and ambiguous relations], (4) "Why? Manifest and latent functions imputed to these existentially conditioned mental productions . . ." (5) "When do the imputed relations of the existential base and knowledge obtain? . . ." [historicist theories or general analytical theories]. Merton also utilized his manifest and latent dichotomy for the realm of ideation, in which he distinguishes between those bits of knowledge that are consciously and unconsciously held. Merton's approach has been applied successfully to research by Warren (1971) in his analysis of urban problems entitled "The Sociology of Knowledge and the Problems of the Inner Cities."

The principal distinction between Merton and Parsons can be seen by Merton's attempt to include the broadest range of predecessors in his working paradigm (including Marx, Scheler, Durkheim, and Mannheim), and his open-ended approach which even finds a comfortable niche for Sorokin's idealistic and emanationistic theories. Useful is Merton's adaptation of Scheler's knowledge typology, where he concludes that an empirical sociology of knowledge is a practicable if not a simple possibility. Merton was adaptable enough to exclude the narrow absolutism of Marx, or Scheler's relativism while giving a fair treatment of objective and subjective approaches. It was the inclusion of Merton's sociology of knowledge chapters which has helped to diminish the distinctly European flavor that the sociology of knowledge has borne from its inception.

The contributions of Kurt Wolff to the sociology of knowledge were not restricted to his role as a compiler of sources, for his well-known article, "The Sociology of Knowledge and Sociological Theory" (1959),

has served many as a relevant introduction into the present frame of reference. In it, he steered a neutral course between Marxian relativism and flights into social nominalism. More importantly, Wolff attempted to diminish the distinctly European flavor of the sociology of knowledge by integrating the psychological theories of the French, familiar to sociologists, with German philosophers, while using as the connecting thread Merton's paradigm for the study of the sociology of knowledge. Wolff's writings tend to raise more pertinent questions than they answer, and, in doing so, force the reader to critique all positions. Yet he assumed some affirmative stances with regard to the question of the proper study of the sociology of knowledge. Wolff maintains that the study of the history of ideas or ideology is not the main province of the sociology of knowledge; rather, the sociology of knowledge must devote itself to understanding all uses of human knowledge.

Critics of the Sociology of Knowledge

As the foremost critic of the sociology of knowledge, Karl Popper consistently leveled stinging criticisms at both the theory and the methods of the field. His principal attacks revolved around the philosophical assumptions of the sociology of knowledge, for in his major work he devoted an entire chapter to the question of whether the individual mind can differentiate truth from error. Popper says that the idea that motivates the sociology of knowledge is a Hegelian version of Kantian theories of knowledge. Such a theory holds that only through the imperfections of the senses are we prevented from knowing true ontological reality. Popper calls this a "bucket theory of the mind" (1950: 399). Most of Popper's scorn is reserved for the discussions of

relativism among Marxian and neo-Marxian scholars along with those questioning historicist assumptions. He writes that the Marxian basis of the sociology of knowledge transforms the field into a Nietzschean "debunking" enterprise, seeking hidden motives everywhere while unable to distinguish the honest from the fraudulent. Popper gives the sociology of knowledge the benefit of the doubt, saying that it serves one positive functive function (1950: 210):

. . . The sociology of knowledge hopes to reform the social sciences by making the social scientists aware of the social forces and ideologies which consistently beset them.

Yet Popper is largely ineffective for several reasons. First, he is incapable of distinguishing between the Marxian study of ideology as a debunking act, and a scientific concern with the social effects and uses of knowledge. Second, Popper is unable to conceive of an objective and empirical sociology of knowledge, because his extensive critiques of Marxist thought have lead him adrift in relativism. This can be demonstrated by Popper's statement (1950:403) that, ". . . there is no doubt that we are all suffering under our own system of prejudices . . . that we accept . . . uncritically." Finally, Popper is a captive of the dialecticism of objectivity versus subjectivity. Knowledge, as Popper maintains, need not always be studied using either polar extreme as a guiding principle.

Other critics of the sociology of knowledge have been motivated by a misinterpretation of the scope of the field. For instance, Gerard De Gre (1941) is widely quoted in response to the problems of objectification of knowledge. Yet, De Gre operates under the assumption that the sociology of knowledge is a study of the history of ideas and ideologies. De Gre is correct to remark that the slogan, "A man is a product

of his time," is sufficient theoretical justification for such research, but the author's vehemence is misdirected.

The criticisms of Arthur Child (1944) similarly revolve around the fiction that the sociology of knowledge deals exclusively with the social role of ideology. He concerns himself with the problem of imputation which involves the tendency of writers to impute certain ideas and ideologies to groups. In question is the intention and motivation of the observer. The students of Marx point out that, so long as ideology is viewed as a venal cause to be unmasked, no one is free of that position's built-in dilemma--that the observer, too, is captive of an ideology. Consequently, many writers and critics in the sociology of knowledge (including Child) have failed to strike the core issues because they have become entangled in the mechanics of ideological processes. While it is true that the study of ideology is a part of the sociology of knowledge, it is only one portion of the broad spectrum of knowledge.

Another essayist, Frank E. Hartung (1952), is dedicated only to a critical rendering of Mannheim's works. Focusing on Mannheim's contention that sociologists should attempt to ascertain the existential influences on thought using empirical means, Hartung reduces this proposition to a simple statement (1952:17):

Mannheim seems to be restating Hume's proposition that reason is and ought only to be the slave of the passions. . . [he] has attempted to sociologize psychoanalysis and has encountered in an insuperable form all of the difficulties involved in a literal translation of individualistic psychological terms into the collective terms of sociology.

More fundamentally, he argues that a knowledge of thought and ideologies is not tantamount to predictions of social action. It is doubtful that either Mannheim or Marx intended such specific-general relationships to be deduced. That Hartung accuses Mannheim of failure to produce

empirical proofs, is less a mark of Mannheim's incapacities than of the absence of methods of acquiring such proofs. Valid is Hartung's criticism that the search for "true knowledge" and faith in socially unattached intellectuals free from ideology is wasted effort.

Finally, too much can be made of the writings of critics for two reasons. First, the primary and central significance of the sociology of knowledge is demonstrated by the number of critics and their vociferous attacks. Most freely admit that the sociology of knowledge holds, not only promise of, but the present understanding to impart a valuable reference point to sociology. But most critics assume that the sociology of knowledge can do so only if it pursues its goal in the manner critically prescribed. Second, the importance of the sociology of knowledge is demonstrated by the fact that most critics would misdirect the efforts of the field for either mistaken or ideological reasons. That such a misallocation of effort should have persisted for so long, is due to the tendencies of recent sociologists to drift into heavily empirical fields, or of going into theoretical research to restrict themselves to formal or nominalist pursuits.

Today's Sociology of Knowledge

Extensive use has been made in the past twenty years of the principals of what might be termed an "empirical phenomenology." Most obvious among them have been the linguists (anthropological, sociological, and psychological) and ethnomenthodologists. Among these are Chomsky (1957), Goodenough (1956), and Frake (1956). These anthropological-linguists have taken to heart (and base their research upon) an awareness of Berger and Luckmann's (1966:13) thesis that, "The sociology of knowledge must

concern itself with everything that passes for 'knowledge' in society."

Consequently, a school of anthropology has surfaced, called "cognitive anthropology," presuming a bracketing of the researcher's perceptions of knowledge. They also insist upon substitution of an open-ended systemization in the place of former approaches during research. Its method stresses the importance of the socio-cultural base and in turn the socio-cultural uses of knowledge. Offshoots of the ethnomethodological frame of reference are proliferating and fruitful, including the scaling of semantic space attempted by Osgood, et al. (1957), and the psychotherapeutic utilizations of reality constructions by Kelly (1956). The parameters of sociology of knowledge applications are expanding briskly, suggesting that there is a need of and a demand for the sociology of knowledge as a conceptual window.

Large numbers of studies are distinguishable utilizing some combination of the three traditions outlined. Boskoff (1969: 307-337) does an excellent job of describing the state of impirical research into theoretical problems using the sociology of knowledge perspective. Wanderer (1969) is an example of recent attempts to concretely measure in language the common structural properties of thoughts (in this case of Spinoza and Euclid) through Guttman scaling techniques.

In 1950, Popper (1950: 210) noted in the sociology of knowledge tendencies toward a Nietzschean "debunking" resting on the philosophical presuppositions of Kant and Hegel. It is interesting that such an approach has been revived in the form of Friedrich's acclaimed A Sociology of Sociology (1970), using Kuhn's theory of scientific paradigms as a point of departure. Friedrich's book suggests that the sociology of knowledge has come full circle and returned to Marx's goal of unmasking

ideological captives; this, however, is not quite the case. The sociology of knowledge now commands tools, perspectives, and a broadened constituency never possessed by the Marxians. The result is that the sociology of knowledge is fast moving to the fore of sociological concerns.

Fuse (1967), in an article detailing the current state and prospects of the sociology of knowledge, takes as a starting point the writings of Mannheim and Marx. Using Merton's European and American dichotomies, Fuse reaches these conclusions: (1) the sociology of knowledge is of value in the study of historical sociology and the history of sociological theory, (2) the sociology of knowledge generates seminal hypotheses, (3) Mannheim's theory of political creations has been useful and may be again. Such observations tend to be valid only in part, since the sociology of knowledge has long since moved beyond the paradigms of Mannheim, Marx, and other founders. Rather, the specific roots and uses of knowledge are being probed from various perspectives using sound empirical methods to the exclusion of philosophical proofs.

In conclusion, it is necessary to say that the sociology of know-ledge is so vast that no adequate analysis is possible within reasonable restrictions of space. Walter (1967:335) echoes the frustration when he writes:

Of treatises on the sociology of knowledge there is no end. The catalogued list of scholarly books, articles, and monographs is already immense and the conclusion is not yet in sight. Nor is there any refragable consensus as to what the subject is all about; what ist distinctive 'scope and method' is to borrow the bland and evasive cliche academic officials use in compiling college curricula.

Consequently, the delineation of and understanding of the field is made very difficult for the novice. For the adept, the matter of sheer

selection of definitions, concepts, and approaches is overwhelming.

Research Position

This study seeks to utilize a theoretical stance incorporating features from each of the schools of thought. It should be noted that the sociology of knowledge does not itself possess a body of theory so labeled. It is, more accurately, a framework for analysis and a point of reference.

The sources of knowledge as understood by Marxian (class-specific) or Mannheimian (ideological-utopian) theorists are too narrow. Rather, the sources of social knowledge are infinite. As Znaniecki and Mills point out, the relevance of scientific and metaphysical knowledge is obvious and related. Chapman (1971) includes as sources of knowledge and as material for reality constructions a list containing magic, religion, myth, education, and more. However, at this time the epistemological problems associated with the phenomenological school allow only theoretical application, due to the dirth of methodological outlets. The empiricist school does not provide better answers, only superior means of answering when properly manipulated.

The sociology of knowledge advocate is compelled to demonstrate that a researcher's theoretical assumptions and methods are dependent upon how he views society. For instance, Mannheim (1936:2) wrote, "The principle thesis of the sociology of knowledge is that there are modes of thought which cannot be adequately understood as long as their social origins are obscured." Such a macro- to micro-social approach, long seen as the province of the history of ideas, is properly suited to the historicist inclinations of Mannheim, Wolff, and Znaniecki. To the general

sociological public, however, such preoccupations smack of philosophical noology sublimating an inordinate interest in ideology. Such unearned disrespect can only be dispelled by a vigorous movement to demonstrate the general explanatory value and specific centrality of the sociology of knowledge perspective in sociology. Such moves have been begun by Adler (1957) and Boskoff (1969).

It should be noted that a concentration on one knowledge system and set of effects does not suggest a rejection of Mannheim's four-factor "problem constellation of the sociology of knowledge." As outlined by Wolff (1959:576), the essential factors with which the sociology of knowledge researcher should concern himself are:

. . . (1) the 'self-transcendence' or 'self-relativization of thought,' that is, the possibility of not taking thought at its face value; (2) 'the emergence of the 'unmasking' turn of the mind' (or 'debunking'); (3) . . . the understanding of thought as 'the expression of' or 'in relation to' history and society; and (4) the social relativization of the 'totality' of the 'mental world' not only of some thoughts. [all puncuation Wolff's]

Rather, this study may be seen as an adjunct to Part Four, wherein the relativity of values and information is explicated. The definitions of the content of "values" are here defined for research purposes.

Campbell (1964) maintains that a value and an attitude are identical. Rokeach (1968:454) defined values distinctly as:

. . . a type of belief, centrally located within one's total belief system, about how one ought, or ought not, to behave, or about some end state of existence worth, or not worth attaining.

Values are pure abstractions, free to be conceptually tied to a circumstance or situation, and free to provide what Lovejoy (1950) calls, "generalized adjectival and terminal goals."

The larger issue of thought as a social product, so dear to Marx

and Mannheim, is not being skirted. Both viewed the sociology of know-ledge as the study of "socially conditioned" knowledge. Rather, as a premise, it is an unspoken assumption in this as well as most sociological research. This research is in essential agreement with the assumptions of the sociology of knowledge outlined by Boskoff (1969:309):

- 1. Complex societies are composed of empirically different roles and statuses that are filled by definable sets of persons.
- 2. Each role or status (or social position) entails a set of experiences, opportunities, limitations, etc., that are more or less accurately perceived by its incumbents.
- 3. Over time, many social positions develop interrelated cues, norms, attitudes by which members learn to perceive in a selective fashion the social behavior of persons in other roles and statuses.
- 4. Consequently, the same events or social processes tend to be perceived and evaluated in notably divergent ways by persons in different social positions.

In the writings of Boskoff are found the best balanced analysis of the traditional focus of the sociology of knowledge. In it, the effect of groups on bodies of knowledge has been the central concern. The unique contribution of this research is to reverse the traditional perspective, making for a highly exploratory study. The result is an effort to determine if the presence of a known, describable, and specific body of knowledge can be said to have measurable effects on the individuals using the knowledge. In this case the knowledge system consists of examination files. The population is a sampling of fraternity and sorority houses. The change in question is a shift (over time) in value orientations by new members, presumably in the direction of older members.

In essence, the methods of Mannheim, Scheler, and Marx are but one way to understand the subject matter. A brief overview of the pertinent literature will demonstrate the degree to which the study diverges from older approaches.

CHAPTER III

REVIEW OF THE LITERATURE

The ambiguity of definition in the sociology of knowledge has resulted in a classification problem for related research. Many studies unknowingly deal with sociology of knowledge issues and problems. The centrality of the subject matter is emphasized by the range and depth of the available research. An illustrative sampling of the literature is found in this chapter.

Some ordering is required to systematize the mass of material examined. Thus, the following classifications will be used: (1) Knowledge and Ideological Systems, (2) Propaganda and Diffusion, (3) Public and Political Opinion, (4) Media Format and Effects, and (5) Social and National Development. The typical relationship demonstrated is exemplified by Boskoff (1969: 333):

The classical statement of the sociology of knowledge asserted a more or less determinate relation (a) between some indicator of social position--class, religion, etc.--and a distinctive value cluster and (b) between the perspective of focal persons or elites and the attitudes of 'dependent' social circles or categories.

In addition, there is a tendency to view knowledge or its use as an independent variable in social settings, and utilize it in such an equation that as many "results" can occur as there are dependent variables.

Knowledge and Ideological Systems

Both the "European" and "American" branches of the sociology of

knowledge (as distinguished by Merton [1957]) have been concerned with the theory and research of ideology, using divergent methodologies. The "European" school has concentrated on the philosophy and meaning of ideology, while the "American" school has executed two distinct phases.

The American branch first investigated large-scale knowledge systems in terms of the interplay between knowledge production and audience, as in Znaniecki's (1940) The Social Role of the Man of Knowledge. Lazarsfeld and Thielen (1958), in The Academic Mind, explored the effect of prevailing social thought (McCarthyism) on the social scientist. Larger in scope, Machup's (1962) The Production and Distribution of Knowledge assumed a macro-sociological approach to the problem of understanding knowledge systems.

The most recent focus of knowledge research has been the ballooning interest in language as the transmission line of culture, especially among anthropological-linguists. Linguistics, as seen by Chomsky (1957: 11) one of the pioneers in its anthropological applications, seeks to determine,

. . . the fundamental underlying properties of successful grammars. The ultimate outcome of these investigations should be a theory of linguistic structure in which the descriptive devices utilized in particular grammars are presented and studied abstractly, with no specific reference to particular languages.

The grammar of language, say the linguists, carries the unspoken but understood rules of social organization. Chomsky concludes that studies of syntax and semantics are empty, for only grammar is independent of meaning (1957:13). Such an inference rests on axioms of the sociology of knowledge which are mainly those of Whorf (1956). The link between the approaches is obvious, in that both assume knowledge (seen either as fact or language) to be socially derived.

The phenomenological implications of the linguistics area are unavoidable, for only by interpreting the speaker's language in the context of the speaker's conceptual world can a researcher approach verstehen. Such an approach, utilized by Goodenough (1956) and Frake (1962), has been labeled "componential analysis." Drawing heavily upon the social psychological developments by the "semantic differential" approach of Osgood, et al. (1957) applications have attempted to "bracket" the cultural biases of the researcher.

The study of language is, however, not the only means of research available for studying knowledge systems, as the "European" school emphasizes. Merton (1957) contrasts the "European" and "American" methodologies. He described the European scholar as pursuing long-range goals of philosophical and meta-physical importance. Exemplary were studies such as those discussing the social sources of "pragmatism" including Aiken (1962), White (1963), and Herman (1943-44). The query of the "European" sociology of knowledge as characterized by Merton was, "Why do men think as they do?" The answers are largely derived by the methodologies of Marx and Mannheim.

By way of comparison, the American counterpart is more readily concerned with matters of public opinion—what the people think—than the mechanisms of social influence. Merton's generalization is broad, but largely valid, when he calls the American variant a study of mass beliefs and popular culture. Great masses of opinion and attitude studies could be cited from books such as Myrdal's (1962) An American Dilemma to articles in Public Opinion Quarterly. Merton suggested that the reason for the American penchant for singularly utilitarian research has been the military—market place—reform orientation of American Sociology. Like

Merton, it is difficult to envision either approach as singly effective.

The investigation of knowledge (and particularly ideological) systems has largely been a rhetorical pursuit. Where it has exhibited empirical indicators of significant underlying elements, it has lacked any sound theoretical basis allowing for progress by accumulation. Notable exceptions have been largely ignored, including the attempt by Topitsch (1958) to empirically link ideology in philosophical orientation with social circumstances.

Finally, the study of knowledge and ideological systems has been largely in fits and starts, reflecting political and academic trends of the past thirty years.

Propaganda and Diffusion

The study of propaganda and diffusion has been rooted in the sociology of knowledge, assuming a body of knowledge or information extant, with presumed effects from exposure. DeFleur writes, "The all consuming question . . . in the study of the mass media can be summed up in simple terms--namely, 'what has been the effect?'" (1966:118). This definition creates a natural environment for the study of propaganda. Propaganda is an effort to "influence attitudes of large numbers of people on controversial issues of relevance to a group" (see Kris and Leites [1951:39]). Many propaganda studies exhibit a ridiculously simple approach, based on the premise that exposure to or acquaintance with some form of information is tantamount to either internationalization or conversion. Much of the slowdown in research can be attributed to conclusions that the communications media are not as potent as had been thought. Developments in social psychology (see Levine and Murphy,

1943) have focused attention on such factors as selective perception and selective retention as mediators of knowledge internalization, further weakening the propaganda researcher's theoretical case. However, propaganda researchers have contributed to the study of knowledge by demonstrating the profound influence of group norms on individual's perception and retention. Katz and Lazarsfeld (1964) offer an excellent review of such literature. Klapper (1960) provides a pertinent summary of the accumulated findings with regard to propaganda and persuasion.

Although the publication of propaganda research has apparently declined (see Gilbertson [1970: 424]) since World War II, the study of diffusion has mushroomed in recent times. By diffusion is meant (Katz, et al., 1963: 237):

(1) acceptance, (2) over time, (3) of some specific item--an idea or practice, (4) by individuals, groups or other adopting units, linked to (5) specific channels of communication, (6) to a specific social structure, and (7) to a given system of values, or culture.

Available to the social scientist is a plethora of diffusion studies in many diverse fields. For example, in anthropology, there was the observation of innovation-diffusion which lead sociologists in this century to seek diffusion patterns in American culture (cf. McVoy, 1940 and Pemberton, 1936). In marketing, much research has centered on predictive-diffusion; that is, knowing what will sell where and to whom (cf. Gorman, 1967). Perhaps the most productive studies have resulted from the combined research of mass communications (cf. Hill and Larsen, 1954; Danielson and Deutchmann, 1960; and Larsen and Medalia, 1958) and political behavioral research (cf. Britt and Menefee, 1944 and Denzin and Spitzer, 1965). Such studies, coupled with those ongoing investigations into the adoption of agricultural innovations (cf. Lionberger, 1960 and Sewell,

1965) have extended the reach of the social scientist in these areas.

For a more comprehensive review of related research, use should be made of innovation-diffusion studies collected by Rogers (1962).

Of selective interest is Greenberg's (1964) "Diffusion of News of the Kennedy Assassination," wherein knowledge of one specific event was analyzed for the rate of diffusion among many social categories of people. With regard to the same event, Coleman and Hollander (1965) attempted to measure the effects of the assassination, concluding that it produced a revulsion toward violence. While both approaches are noteworthy, they still miss the goal, for they fail to detect the singular effects presumed of a single system of information. This study attempts to remedy the absence of investigation in the area.

Related writings have attempted to examine the mass media as bearers of ideological baggage, in the tradition of Mannheim. Exemplary is Winick (1959:33) who writes:

A study of network and station program practices suggests that television is a fairly accurate mirror of the more conversative values of our society.

Pertinent also is a body of research intended to identify communication "networks" which may carry social or intellectual knowledge by combinations of physical and mechanical means. Typical are studies of "nets" among primitive peoples (see Mead, 1937), the role of leadership (see Shaw, 1955), and personal influence (see Katz and Lazarsfeld, 1964) in the network's operation. DeFleur (1962) examined the transmission of false information (rumor) over the "nets" while Shaw (1954) studied the effects of unequal amounts of information in such knowledge systems.

In summary, it can be seen that propaganda and diffusion studies presume a causal relationship between bodies of knowledge, information,

or fact and individuals. Ignorance of the root assumptions of such research leads to a misapplication or disregarding of the findings. The sociology of knowledge offers a theoretical framework for the integration of propaganda and diffusion research into a general study of social thought.

Public and Political Opinion

It is interesting that Merton (1957) entitled the sociology of knowledge section of his well-known book, "The Sociology of Knowledge and Mass Communications" (see Merton, 1957:491). It was Merton who categorized the American sociology of knowledge as a study in public opinion, while Wolff (1959) would later criticize the sociology of knowledge as being merely a study in public opinion. One has only to look to the literature to see that the study of public opinion is alive and well in the United States. Having developed early (see Lundberg, 1926), the term "public opinion" is used as a measure of the mass awareness or reactions to information (and not knowledge, per se). Yet the preoccupation with opinions presumes a causal link between information and attitude. Sigel (1967) described the creation of political individuals as the parallel of normative socialization. The role of knowledge, states Sigel, is compatible with that of social values and norms in normative socialization. Similar was Levin's (1962) analogy, when he described "alienation" as occurring when the mass media's content failed to match the perceptions and interests of the audience.

Few opinion researchers have utilized a sociology of knowledge format in the operation of research, when such a perspective should prove a valuable aid to understanding. Political opinion surveys, for

instance, have sought to measure knowledge of information supplied by various media. A number of studies, including Erskine (1963) and the University of Michigan (1964), have demonstrated that enormous ignorance exists among the public with regard to issues and public figures. The explanations for these phenomena are inadequate, concluding only that some information systems are less important to the public than are more immediate and personal systems. One group of researchers, following the lead of Lazarsfeld, Berelson, and Gaudet (1948) and Merton (1949) has pursued the goal of understanding systems of knowledge transmission that pivot around community members. Terming these individuals "cosmopolitans and locals," Merton concluded that the "opinion leader's" assimilation of knowledge and resultant conclusions are of significance to individuals in their sphere of influence. Such a perspective has been explored in the works of Katz and Lazarsfeld (1964) among others. Stouffer (1963) surveyed the main worries of American adults, finding 80 per cent of the replies couched in personal terms, suggesting that the public selects from specific knowledge systems, information most functional to them personally.

The useful framework of the sociology of knowledge and its related ideological interests is reflected in its growing applications in political science. An example is Young (1968), The Politics of Affluence: Ideology in the United States since World War II, wherein the perceptions of Mannheim are used as the guiding theme of the research. Political sociologists have been slower to adopt the innovation, continuing usually to see political opinion as a function of social structural influence.

A branch of opinion and attitude research deals with the role of cognition in opinion formation. Exemplary of this rather large area is

that group of studies evaluating knowledge of danger in a situation relative to a willingness to take risks. Lamm (1967) studied individual risk-taking after knowledge exposure, Wallach and Kogan (1965) studied group risk-taking phenomena, and Wallach and Wing (1968) attempted to place risk-taking by knowledgeable persons in the realm of values. Such studies are valuable first steps toward the understanding of cognition's role in knowledge systems.

Finally, the goal of opinion and attitude research is simply stated in sociology of knowledge terms: a body of knowledge or fact is known to have been available to a population with presumed measurable effects. The movement away from the nomothetic perspectives of early research in opinions and attitudes in the direction of a more ideographic sociology of knowledge understanding is now occurring along a broad front.

Mass Media Format and Effects

The mass media in the United States forms a knowledge system of its own, in addition to overlapping into various scientific, social, political, and other knowledge realms. It is not surprising to find the study of the media a topic prominent in the sociology of knowledge.

Following World War II it became academically fashionable to study the implications of the mass media as a propaganda tool. Vast quanities of such research accumulated, resulting in somewhat surprising conclusions. Klapper (1963:517) comments,

Mass communications research has found few clear-cut yes or no answers . . . although it has asserted over and over that mass communication is rarely, if ever, the prime mover, and instead tends to reinforce the existing predispositions of its audience members.

Katz (1966) was more specific, adding, "What research on mass

communications has learned in its three decades is that the mass media are far less potent than had been expected (1966:551). However, as Merton (1957) pointed out, American research has tended to lend itself to the service of the market place more often than to academic goals. What the propaganda researchers may have witnessed is the education of a buying public. An excellent summarization of the studies of differential effectiveness can be found in Hovland (1954), "The Effects of the Mass Media of Communication." Yet, Chapman (1971) cautioned that the message of the media is often simply an ideology disguised as objectivity, resulting in large-scale negation of the media as a source of fact. No thorough studies, he pointed out, have been made on the ideological impact of broadcast media. McLuhan (1964) suggested the radical notion that the vital impact of the media is not as knowledge (or ideological) dispensations, but as a captivating and personal media. The mode of transmission, says McLuhan, is the message of mass communications. A British study by Himmelweit, et al. (1958) found children with social and academic difficulties using television (just the personal media, not the information source) as a barrier against the abrasiveness of social interaction.

Research has tended to concentrate on differential media effectiveness in terms of media content rather than mode of transmission. The internalization of various types of information has been seen to generate a broad range of effects. Research in this vein dates from the publication of Hovland, Janis, and Kelly's <u>Communication and Persuasion</u> (1953), wherein basic research in attitude modification was detailed. Elkin (1950) sought to determine the effects on children of violence in movie westerns. Bailyn (1959) examined the effects of television programming

on children's cognitions, Ridder (1963) its effects on academic achievement, and Foulkes and Katz (1962) on escapist tendencies. Klapper (1960) offered a fine survey of the media's mixed effects, while Berkowitz, et al. (1963) provided an excellent review of research on aggression and the media.

A sampling of comparative media effects demonstrates the narrowness of communications research. Belson (1961) treated television, newspapers, and magazines as rival knowledge-transmission systems. Parker (1963) similarly studied television-watching and library circulation rates as empirical indicators of knowledge usage.

An interpretation of media and their alleged effects cannot be readily acquired. One reason is that media researchers have failed to specify their assumptions as to the significance of the media or the impact of the content. In addition many research designs may be flawed through the exclusion of intervening variables and multiple causation factors. Finally, as Muller (1970) pointed out, to discuss "mass" media connotes a predisposition to perceive of society as possessing "mass" culture, whereas there may be no mass society, only "mass" ways of conceptualizing society. It is obvious, however, that the advantages of perceiving effects and media format research as knowledge system products are being ignored.

Social and National Development

Increasing amounts of research in the past decade have been directed toward nations' transitions from traditional to industrialized societies.

Many studies conclude that social development depends on nations' publics acquiring suitable values and attitudes at various status levels.

The sociology of knowledge writer has been most concerned with the source and transmission means of such acquisition.

Lerner (1958) examined the broad category of social transitions, while other studies have specifically linked political events with the public's value-attitudes, including Pye (1962), Apter (1965), Eisenstadt (1966), and Lerner and Schramm (1967). Schramm (1964:127) stresses that much of the responsibility for teaching values and attitudes must go to the mass media, saying:

People who live in societies where the mass media are common sometimes forget how much they learn from the media.

Yet the core issue, says Schramm (1964:ix) is that, "Free and adequate information is thus not only a goal; it is also a means of bringing about desired social change." Yet Schramm and his fellow mechanics of modern industrialization never concern themselves with the central issues of the sociology of knowledge ideology, power, and control. Such a point of view might have prevented Schramm from naively writing (1964:90):

The question . . . is not whether the mass media will ultimately come into wide use in the developing countries as channels of information and education, but rather whether their introduction should be hurried so that they can do more than they are doing at present to contribute to national development. [all emphasis Schramm's]

Others, however, have commented on the potential effects in developing nations of dictatorial control of mass media, among them Pool (1963) and Fagan (1964).

Assuming objective definitions of reality to be a function of individual selection from all possible alternatives, the control of knowledge
sources and access is a topic of prime importance to a society, and
serves as a central concern of the sociology of knowledge. The application of this sociology of knowledge perspective to social and national

development studies is, as suggested by Boskoff (1969), direct and desirable.

CHAPTER IV

RESEARCH DESIGN

The Methodological Dilemma

The nature of this study is essentially exploratory. Seeking to accomplish multiple ends, descriptive as well as quantitative, the methodologies reflect the experimental character of the undertaking. This this study bears the sociology of knowledge label presents certain difficulties, for as Warner (1952) points out, sociology of knowledge writers have, in the past, exhibited a seemingly irrepressible tendency to lapse into historicism. The tendency is the product of an honest desire to achieve universally valid generalizations, although it ignores many methodological requisites of such endeavors. In short, sociological historicism is too far removed from sociological data. Much of the blame for the universalist direction of the sociology of knowledge belongs to Marx, who concentrated on economic motivations to the exclusion of most others, and Mannheim, who concerned himself with political causation.

With regard to methodologies in the sociology of knowledge, two points of view are becoming increasingly prominent. Sjoberg and Nett (1968:5) see a convergence of the neo-idealist and positivist traditions in the offing. The neo-idealist tradition grew out of Kantian and Hegelian writings, having been elaborated in philosophy by Dilthey and in sociology by Weber. The common thread of neo-idealism was the

supposition that the data of the physical and of the social sciences were irreconcilably distinct. It was in an effort to derive from this view a sociological method that Weber (1964) recommended "verstehen" sociology, a form of role-taking often under-translated as "understanding." Specifically, Weber's method was a form of ethnomethodological phenomenology wherein the researcher attempted to recreate the constructions of social reality perceived by the subject. Bruyn (1964) represents a group of sociologists who today eschew all but "verstehen" research methods. Others, such as Blumer (1969) still emphasize that the difference in the datum must prevent a convergence of methods, for Blumer's insistence on an all-pervasive dynamism in society assumes a continuous remaking of social reality and the social data.

By way of contrast, the positivists (from Durkheim through Borgotta) and logical empiricists stress, as did Marx, that the methodologies of the social and physical sciences are mutually interchangeable. Specifically, the difference between the two approaches revolves around the problem of objectification. The positivist holds that the application of the (physical) scientific method results, automatically, in objectified knowledge that can be integrated into a mechanistic or organistic model of social life. Sjoberg and Nett (1968:7), Gouldner (1970), and Friederichs (1970) point out that the positivists have long ignored the social impact of their research. An example of this interactiveness between scientist and data is Bramson's (1961) study which clearly links shifts in sociological research orientations to similar shifts in public value systems. The greater potential for cause/effects between researcher and data in one brand of science (the physical as opposed to the social) is obvious. Yet the situation presents a genuine dilemma, for

without some objective knowledge there can be no verified and replicable conclusions. Increasingly the sociology of knowledge is being utilized as a reference point for understanding sociological data. Sjoberg and Nett (1968:11-12) stress this approach when they write:

Viewed as a methodological tool, the sociology of knowledge perspective not only prevents any lapse into antiscientific, historicist position but permits one to avoid, at least to a degree, becoming a captive of one's own time and place.

The Problem

It is curious that little research has concentrated on the social effects of a specific body of knowledge. Rather, intense efforts have sought to locate the sources of knowledge in social structures. This research, by comparison, seeks to ascertain direct effects on individuals of a body of knowledge apart from the presumed effects of group membership.

The regular uses of a body of knowledge will be sampled for their reactions to a number of value orientation scales. New users of the system will be tested at the time of their initial entrance into the group and later after sustained exposure to the knowledge system. The degree of use of the knowledge system will be determined and used as a controlling variable. An effort will be made to ascertain the degree to which the new members are directly affected by the knowledge system through a comparison of the shift in reactions to the measuring scales. A shift in the direction of those values held by the older members will suggest, within limits, some effect of the knowledge system and vice versa.

Ecological Setting

The university may be visualized as a multi-faceted complex

organization offering participants both goals and means for attainment. The manifest functions of the university are held to be the production and distribution of knowledge through approved channels -- the lecture hall, the laboratory, and library. The latent functions of the university system are catholic. They include the placement and socialization of young adults into social positions, political service, accommodation of regional technical needs, institutional exchange, and many others. Yet always overshadowing the functioning of the university is the knowledge storage and dispensation function. As a topic for the sociology of knowledge, analysis at this level would be quantitatively impossible, for sheer volume would prohibit adequate treatment. However, there operates a parallel system of knowledge distribution and consumption that is a by-product of the major knowledge generation system of the university. The smaller system does operationally short-circuit the major function of the university as a whole, for its goal is to supply "finished" rather than "raw" information. Referred to, of course, is the test file system of the fraternities and sororities on campus. The symbiotic relationship between the university and rival knowledge systems is more adequately treated in Chapter V.

This informal knowledge system is ideally suited for empirical research in the sociology of knowledge for reasons related to theoretical and methodological requirements. The smaller knowledge system has:

- (1) limited and knowable sources
- (2) restricted access (being limited principally to members of individual fraternities and sororities)
- (3) measurable volume by which the contents of the knowledge system can be monitored and analyzed

- (4) measurable parameters (in that the limits of both sources and distribution can be known)
- (5) measurable social effects of the knowledge system due to the restricted number of users

This research should fill a number of theoretical gaps, later specified in terms of specification and measurement of knowledge systems.

The Sample

The entire Greek population on the Oklahoma State University is distributed throughout twenty-six fraternities and twelve sororities. Three fraternities and two sororities were selected, the five groups constituting exactly ten per cent of the campus fraternal population.

The criteria for selection of fraternities consisted of dividing the twenty-six fraternities into even categories by size of membership (small-medium-large). Sororities were divided into small and large categories by size of membership. From each group division one fraternal organization was selected on the basis of availability access and adequacy of pledge size.

Within the sample population, a paired-ordering was created, matching every new pledge member with an older member, the older member having been in residence at least one year. At the end of three months, the pledge group was retested, and the three sets of scores evaluated. The total number in the sample was 199, with men and women included.

The Data

The data of this research are of three types: (a) the material or artifact data, (b) the non-material data, and (c) the social data. The

specification and analysis proceed as follows:

The material sources consist of the rather elaborate files kept by the Greeks relating to courses, tests, term papers, bibliographies, and study guides. This aspect lends itself most readily to description and qualitative comparison. Analysis of the material or artifact data attempts to define the parameters of the system in terms of its material acquisitions. Since five Greek organizations constitute the sampling population, various comparisons are used to determine if the material collections differ in size or content. Checks will be made to ascertain if file size affects subjects' responses.

Circourel (1964) maintains that measurement in sociology is essentially a problem in the sociology of knowledge, and further that, no single method will suffice. An attempt was made to tailor the various techniques of data-gathering to the desired goals of the investigation. Thus, the suggestion by Denzin (1970:471-524) was utilized, with regard to the use of multiple methodologies, called "data triangulation," in order to insure some degree of internal as well as external reliability. These triangulation methods include: a selective content analysis of information files and other archive data, interview and questionnaire administration, and observation. The latter two techniques were used with proper consideration that intrinsic and extrinsic test factors can influence findings. As suggested by Webb, et al. (1966), the observerinterviewer conducted all operations under the assumption that the interviewer is a part of the process-level actions, and that in this sense, research is necessarily an interactive event. The details of these applications are described below.

A. Content Analysis. The existence of a body of systematic and

accessible clerical data served to establish certain material parameters of the information system. Owing to the sheer bulk of the information files maintained by the sample populations, it was necessary to exercise some selectivity, while retaining a consistent sampling procedure for comparison. Therefore, a careful quantitative analysis of the frequencies, inclusions, exclusions, and depth of the data was performed on the materials under the "Sociology" label in the files. By standardizing the analysis throughout, it was possible to compare the relative adequacies and inadequancies of the files. Sociology courses are required with approximately the same frequency as all other courses on campus. Thus, the sampling should have served a standardizing function. Content analysis findings appear in Chapter V.

B. Interview and Questionnaire. All members sampled were required to respond to a questionnaire aimed at their dependence on and their assessment of the system's information. A more detailed discussion follows under the heading of 'The Instrument," and the questionnaire may be seen in Appendix A.

The interviews were conducted with randomly selected members of both member and pledge groups of all sample fraternity and sorority houses. The aim was a fuller understanding of the information system's role in the everyday life and social structures of the participants. As the nature of the data was supplemental, not every member of the sample was required for interview purposes. The interview schedule may be seen in Appendix B.

C. Observation. The researcher availed himself of opportunities granted to observe the operations of the knowledge system. Working without a time table and without interference in the houses' normal routine,

a picture emerged with regard to the manner in which the system functioned. Like the interview, observation tended to supply supplemental data free from the rigid structuring of the questionnaire format. A description of the observer's conclusions are contained in Chapter V.

The Instrument

The questionnaire consisted of three parts designed to measure personal values and ethics in relative terms, as contrasted with the effects of the knowledge system.

The first section of the questionnaire included an original portion which, aside from gathering certain attribute data, sought to determine specific feelings toward and awareness of the knowledge system. Using the names of the respondents, accumulate grade point averages and ACT scores were added to the attribute data.

The second portion incorporated a value-profile designed by Bales and Couch (1969) to inventory four value-factors: acceptance of authority, need-determined expression versus value-determined restraint, equitarianism and individualism. Containing some forty items, the Bales and Couch instrument used Likert scaling to weight responses. Administered by its inventors to Harvard, Radcliff, and Bennington students as well as to officer candidates at Maxwell Air Force Base, factor analysis by Bales and Couch yielded average inter-item correlations of about .40.

The third segment of the questionnaire utilized a personal value scale from Scott (1965) Values and Organization: A Study of Fraternities and Sororities. Extensively tested at the University of Colorado and elsewhere, the short form was here utilized. The short-form contained

sixty questions (from the original 240), and was developed through the analysis of the responses of some 900 subjects. Using Cronback's (1951) "alpha" as a coefficient of reliability, Scott found most items on the short-form (in a test-retest) averaged .65 reliability.

Operational Procedures

The administration of questionnaires was standardized insofar as circumstances would permit. The bulk of the administrations took place in the late afternoon and early evening in the house of residence of the fraternity and sorority members. It was generally customary for the group to hold meetings after the evening meal. Advantage was taken of this habit, and arrangements were made (through the group's vice president) to attend. Questionnaires were administered after the meetings. Generally the pledges and an equal number of older members were asked to remain while the balance of the group departed. Instructions to respondents were very brief, containing a statement that responses would not reflect on the member's group or himself (since confidentality was assured) and a plea was made for frankness. The time of administration ranged from ten to twenty-five minutes, with the bulk of the respondents averaging fifteen minutes. The subject's name was elicited at the time the questionnaire was returned, and name was used (in cooperation with the Office of the Registrar, Oklahoma State University) to obtain the following data: cumulative Grade Point Average (GPA) for the Fall, 1971 semester, and standardized American College Testing (ACT) scores. Strict coding procedures were maintained throughout to assure absolute privacy for the respondents.

After the second administration of the pledge retest questionnaires,

interviews were conducted with a random assortment of subjects in an effort to fill in gaps in the accumulate knowledge. The setting was usually the lounge or recreation room of the interviewee's house. The time
was mutually agreed upon to assure privacy. An interview schedule was
used, and the exchanges were tape recorded. The schedule of the interview's format may be seen in Appendix B. Questionnaire data was coded
onto computer punch cards for statistical analysis.

Statistical Analysis

After the initial coding of the questionnaire data onto punch cards, a program was written to transform the raw data into usable form. In the program, the Likert scale weightings for each value-factor were summed and a new deck of data cards supplied by computer punching devices. The analysis was performed in two stages. First, the primary or direct effects of the knowledge system was explored using analysis of variance techniques. Second, secondary or indirect effects of both the knowledge system and group membership were probed using a proportional comparison of means. The means were generated through responses to value-factors in Bales and Couch and Scott's scales.

Using the refined data, another statistical operation was performed. Using the ANVAR 23 program from Veldman (1967), three-factor factorial analyses of variance were performed. The use of a single blocking element, in this case the value-factor, resulted in a split-plot analysis of variance with one replication, best conceptualized as two simple two-way analyses of variance. The formula for this analysis may be found in Appendix C. ANVAR 23 was used because of its capacity to treat samples of unequal cell size through the use of harmonic means. Factorial

analysis of variance allowed control of certain variables felt to intervene in the direct operation of the knowledge systems effects. These variables included: overall academic competence, as represented by accumulate Grade Point Averages (GPA), and the American College Testing Program Scores (ACT) required for admittance to Oklahoma State University. Other variables controlled were: length of exposure to the knowledge system and frequency of use of the knowledge system. Thus, the analysis of computer variance program was used to determine if responses to value-laden questions differed significantly enough to warrant further investigation of effects. Those value-loadings not attaining a statistically significant variation (<<=<.05) were passed over. In some cases it was necessary to collapse some categories in order that sufficient cell size for adequate analysis by ANVAR 23.

The statistical tests applied to the data sought to determine the probability that the various sample groupings were significantly similar or divergent as to allow statistical decision on a probability basis alone. Thus, the analysis of variance test used the calculated variance of each sample to estimate the likelihood that the three samples were drawn from different theoretical sampling distributions. Rather than using a simple comparison of means, a harmonic means analysis was used in order to adequately deal with examples of unequal size.

The "F" test is modeled on the assumption that comparison of the variances of groups will yield a statistical decision at some level of significance as to their relatedness. The "F" test of significance accounts for differentials in sample size and group variances. While there are limitations and drawbacks associated with the use of "F" tests, as Hsu and Feldt (1969) point out, the exploratory nature of this study

suggests that certain latitudes are acceptable in the interests of discovery. The examination of secondary effects was accomplished through the compilation and standardization of value-factor means by group (members, pledges, and pledge retest). All means were converted to a standard base of 100 per cent for purposes of comparison.

Finally, percentages and proportions are used in descriptive portions in order to present a straightforward and simple understanding of the knowledge system and its effects.

CHAPTER V

ANALYSIS OF THE DATA

The analysis of the findings is accomplished in three parts. I. A detailed description of the knowledge system in question and its ecological setting is offered. An attempt is made to demonstrate the role of the knowledge system in the functioning of the organization. II. A quantitatively descriptive analysis demonstrates the interrelationship of the social organization and individuals, and the knowledge system. The findings from comparative content analyses of the test files are presented, along with the conclusions from interviews and observations by the author. III. Finally, the statistical findings with regard to shifts in value-clusters as measured among knowledge-users are presented.

The Scope and Functioning of the Knowledge System

There operates on the campus of Oklahoma State University a highly efficient and effective means of accumulating functional resource banks: test files. On this campus of about 18,000, the most efficient machinery operates for the benefit of approximately 1,000 women and 1,490 men who populate the twenty-six fraternities and twelve sororities. There is nothing covert or illegal in the accumulation of such files, as the later discussion of sources will indicate, nor is their comsumption controlled for monetary gain. The existence of the files is common

knowledge and not a source of contention on campus. The reasons for the files' existence and maintenance must be understood in the context of the university as a complex organization.

The University

As a large-scale organization, the operation of the modern university is in many ways governed by means-ends alternatives. Functioning bureaucratically, the university serves the needs of society and individuals in a variety of ways.

Reams of sociological sources are extant dealing with the manifest and latent functions of the American university, including socialization, maintenance of marginality, placement in social stratification systems, and many others. Yet overshadowing all of them is the most obvious manifest function, " . . . described by most as the acquisition and dissemination of knowledge" (see Scott, 1965:75). Even more concrete is the training of skilled workers bearing their badge of training, the college diploma. The consequence is a situation where the professed or official goals are in reality secondary to unofficial or operative goals. Perrow (1961:855) says that in such situations some friction is bound to occur. Accepting these premises as starting points, it becomes easy to accept the organizationalist explanation for behavior, frequently being a search for goal-attainment and need-satisfaction. Selznick, citing cases where the unofficial goals are selected by participants, suggests that " . . . the professed goals will tend to go down in defeat" (1943:48). Thus, except for the college degree borne by graduates, the product of the university is difficult to see and measure. While Etzioni (1961) points out that complex organizations are essentially normative systems, and

Thompson and McEwen (1958: 24) detail that ideals in terms of behavior or goal-achievement become more difficult, "... as the 'product' of the enterprise becomes less tangible and more difficult to measure objectively," both are in terms of process and results. It is for this reason that the attainment of a college degree tends to be placed in a position of central importance. The means to the degree's attainment is the individual acquisition of grade points and credit hours. Discussion of the value of scholarly pursuits and academic attachments become largely rhetorical, with students being driven to place grades at the top of a need-hierarchy. Yet such generalized theorizing may be dangerous with regard to knowledge usage.

Clark (1962) points out that college students, as organizational members, comprise sub-cultures he labels: "academic, consumervocational, non-conformist," and "collegiate." It is of interest to note that only the last, the "collegiate" sub-culture uses the information system extensively. This is for a number of reasons. First, the test files are a body of situation-specific resources that are useful only in preparing for examinations, and specifically objective examinations. Essay or subjective examinations require a synthesis and degree of generalization not obtained by reading prior examination questions. Second, the accumulation and maintenance of such files constitute a time-consuming and sometimes tedious chore demanding a degree of systematization to function properly. The Greek organization can allocate manpower to maintain files for the group's benefit without expense or difficulty. Third, to be useful the file must contain a range of sources covering enough courses to meet group needs. Only from a large body of individuals can examinations be produced on a wide number of

courses.

As an organization, the university generally ignores the informal knowledge network for a number of sound reasons. Initially, control and regulation of such a system would entail more cost and manpower than the rewards would justify. Also, the university can readily pretend, in the name of pluralism, not to see a large number of occurrences that might be generally unpopular. The test file system may, on the other hand, be the price the university pays for control. Greek leaders are encouraged to work closely with university liaisons, a situation Etzioni (1962:112) may have been describing when he said:

. . . special efforts are made to encourage formal expressive leaders, in order to reduce the dysfunctional effects of alienated informal leadership.

Thus, it may be that the test file system is not ignored so much as it is used by the university administration.

The Knowledge Network

The specificity of the knowledge-system's content dictates limited sources. It is important to examine the test network as it operates in the modern university. The item specifically sought is the test question, while the package by which they are transmitted is an examination.

The source of the test item may be a test booklet supplied by text-book publishers to the instructor. Teachers who use only test booklets may be highly sought after by students, for copies of test booklets, while not easily obtained by students, are occasionally circulated. The instructor may use old copies of his own or other's examinations to make up new examinations, in which case the test files may pay off handsomely for the student who can recognize questions out of context.

The two methods mentioned above tend to operate on behalf of the student having access to the test files. Both may be regarded as slack procedures in teaching a course, for they are most frequently utilized by inexperienced graduate assistants, the faculty member teaching other courses he regards as more important, or simply the lazy. Finally, the test item may be generated by the instructor by integrating a large body of facts, data, nonsense, and course-specific information to create a new question. Yet even in this instance the test files may help, for past examinations made out by the instructor may reveal to the student a pattern or idiosyncracy in test creation. At the very least it yields an awareness of the writing style of the instructor. There are limits to the number of ways a specific question can be phrased, and this principle applies also to test questions.

The generation of test items and their incorporation into examinations does not exhaust the test networks operation, for it is only beginning at this stage. At many points between instructor and test file there is access to the examination by non-faculty personnel. During the typing, reproduction, collation, and stapling operations, the examinations are frequently in the hands of work-study students working parttime. Even in storage, the examination may not be completely secure, for the office of the instructor may be breached by the ubiquitous pass key. Accidents may occur and the tests may be widely distributed through carelessness. In the administration of the examination, the instructor or his proctors may hand out extra copies that may ultimately be reproduced in photo-copy machines on campus. Finally, the use of student graders may bring into play small-scale cheating throuth covert channels.

Yet all of these mechanisms function when (1) objective examinations are used, and (2) not returned by the instructor to the student. A large proportion of examinations are in fact, returned to the student after being graded. Most examinations find their way into test files in such a manner, since the extra effort and risk of stealing examinations may only be rewarded if resale is the objective. It has become increasingly obvious that the fraternity test file system serves mostly a limited audience in rather unexciting ways.

It is common practice for house members to consult the test files when examinations are returned to insure that such a copy is there contained. While it has been rumored that some clandestine activities occur in pursuit of complete test files, this appears not to be the case.

Rather, the needs which generate faculty memos concerning test security seem to have been the result of profiteers selling "cold copies" of examinations to others. The test files are usually housed in a small study hall or lounge. Ordering is accomplishing through filing cabinets. Access to the files may be obtained freely by housemembers, and in some cases their friends.

Functions of the System

The functions served by the knowledge system are both individual and collective. To individuals the knowledge system meets basic needs in the university. For those requiring its benefits, the test files may mean the difference between passing or failing a course. It may boost a good student's average sufficiently high to insure placement on the dean's list. In light of the Greeks' habit of requiring a minimum grade point average of its members, the file may determine the maintenance of

group membership.

For the group, the files are physical evidence of the group's interest in scholarship (or at least good grades) whether motivated by competition or good intentions. Other incentives include the fact that membership in the group is contingent upon the maintenance of minimum grades.

The university tends to view the existence of the test files in a rather laissez-faire manner. In the years past the practice on some campuses was attacked and driven underground. Since, the college community has tended to simply ignore its existence. Recently, with the movements by large numbers of students away from the fraternity membership patterns, active efforts have been made to equalize the effects of the files. Some colleges have required instructors to place old copies of their examinations on open file in the university library. Other colleges ask instructors not to heavily rely on old examinations or encourage the use of essay or other non-objective testing procedures. At Oklahoma State University, living groups at residence halls have recently formed independent students' organizations with the creation of residence hall test files as a goal.

It appears that the university administration has successfully dealt with test files through a campaign of silence. Movements by students to make colleges less elitest and more egalitarian have been instituted and acted upon. Yet the significance to the sociologist lies not in collective efforts as wave movements. Rather, in the fact that the potency and utility of a body of knowledge was recognized and regulated. It appears that now the body of knowledge contained in test files have been successfully diffused. No ill-effects are evident save the loss of

monopoly by fraternal organizations of which the last is only one symptom of a general weakening of influence.

Content and Access to the Knowledge System

In analyzing the contents of the examination files, the ordering of their selection will be retained. That is, small, medium, and large populations among fraternities; and small and large sororities.

Smallest Fraternity

- A. Setting: Situated upstairs in a two-story fraternity house, the files were contained in one steel file cabinet. Only the lower two drawers contained files, both were unlocked. Located in a small space in a hallway, the files were readily accessible to all members. The area also served to house a soft-drink machine and a telephone. No desk or chairs were readily available, although the members' rooms were nearby.
- B. Files: The files were indexed alphabetically and were contained in manila folders. Most of the selections were from basic, required courses. Numbering only about thirty-five manila folders, much of the space was taken up with contributions in the form of study notes, lecture and lab problems, and so forth.
- C. Access: The files were unlocked (as stated above) and readily accessible to all members of the fraternity. There is no committee organized or appointed to maintain the files.
- D. Contents: The most prominent single item was a (hand written) set of sociological definitions contributed by a former student. Containing some 200 terms and concepts, it could serve students well in their preparation for examinations.

The file for "Sociology" contained only ten examinations. Of the ten, five were listed under course numbering systems no longer utilized by the University. These tests were badly out of date. Some examinations were more than five years old, and were prepared by instructors long since departed. None were present representing Sociology 1113 (Principles of Sociology), the most frequented sociology course. Also absent were examinations for Sociology 2123 (Social Problems), also a popular offering.

The bulk of the up-to-date examinations seem to have been supplied by a single student majoring or minoring in sociology, for most were for upper division courses. Only one exam was for a popular undergraduate course for non-majors: Sociology 3423 (Urban Sociology).

E. Observer's Conclusions: The files were adequate for the student interested in upper division courses and for the student with a narrow curriculum. The greatest flaw in the file is its shallowness, a weakness accentuated by its being badly out of date. The rather extensive list of concepts and definitions was the file's greatest resource.

Middle Size Fraternity

- A. Setting: The files are kept in the basement of a rambling fraternity house. Specifically, the files are in two lower cabinet compartments of an empty trophy case. Facing the trophy case was a stairway leading from the entrance hall to the basement. The basement room was approximately ten feet square. A portable television served the purpose of recreation room entertainment. No desk or study facilities were visible, nor was study possible in the recreation room.
- B. Files: The bulk of the files were contained in two cardboard boxes approximately two and one-half feet by two and one-half feet. The

exams were filed in manila folders marked with the subject indexes. The largest part of the visible files was devoted to speciality courses in non-required areas, including zoology, speech, and geography. One box was on one side of the case, one on the other. Also, on the right side were approximately thirty unlabeled spiral notebooks containing laboratory, lecture, and special project notes. None were marked on the outside and none were indexed. Next to the spirals was an approximately equal number of commercially prepared study guides in various disciplines, including English and history among others. No individual or committee was charged with the maintenance of the files.

- C. Access: The cabinet containing the files was kept locked at all times. A single key was in the possession of a member. No restrictions were placed on the length of time or manner of file use, except for the difficulty entailed in obtaining the key.
- D. Contents: Two manila folders were inscribed "Sociology" in the files, each bearing a course number. The two folders, taken together, contained only three examinations. One undated examination was from Sociology 2123 (Social Problems), a popular course. Two examinations were three years old, for Sociology 3353 (Cultural Anthropology). No tests were present for introductory sociology, the most heavily enrolled course, nor for urban sociology, another frequently taken upper division course.
- E. Observer's Conclusions: The members exhibit rather little concern for the adequacy of the test files, and as a consequence the test files are a poor resource. Stacks of unsorted materials and general disorder evidence some degree of neglect. In sociology the files are virtually non-existent.

Largest Fraternity

- A. Setting: Kept in two four-drawer file cabinets in a student's room, entrance was simple for the room was located just off the main hallway. Privacy for the user was generally assured and desks nearby could be utilized by the fraternity member.
- B. Files: The first file cabinet contained the bulk of the files. The second contained spiral-bound lecture notes, lab manuals, and commercially produced study aids. The course offerings were listed on the manila folders. The total number was well over 1200. All were indexed alphabetically by course name.
- C. Access: The files were unlocked and there was no hindrance to the use of the files by individuals. The door to the room was also unlocked.
- D. Contents: A seemingly complete file, the contents were, on inspection, heavily weighted in favor of the physical and natural sciences. Most majors in the fraternity were pre-medicine and business majors. As a consequence, it is not surprising that the bulk of the files were servicing students in physics, economics, chemistry, and business. The social and behavioral sciences were virtually ignored, save for a few files in psychology. There was, surprisingly, no file in sociology at all.
- E. Observer's Conclusions: The files for this group were the best tended of all groups surveyed. They exhibited a high degree of organization and were well indexed. That they were so heavily concentrated in the non-social sciences reflects the members' needs, while making analysis difficult. They were, without question, the best files among fraternities.

Smallest Sorority

- A. Setting: Situated in the basement of an opulent older home, the files consisted of a single metal filing cabinet. The basement file area was a multi-purpose one, serving as a storage area for luggage, as well as containing numerous vending machines. Two file drawers contained manila folders, one contained guides and course notes, the fourth drawer was empty.
- B. Files: Indexed alphabetically, the total number of manila folders was about 100. While not as orderly as some others (such as the largest fraternity, a standard against which the others came to be compared), the file was passably neat.
- C. Access: Located outside heavily circulated areas, the files were unlocked and easily used by members. No desk or chairs were readily evidenced, thus the user was compelled to remove the file to some other work area.
- D. Contents: Two manila folders were inscribed "Sociology." With the exception of a few stray examinations from Spanish and Social Studies, the greatest part of the contents were for Sociology 1113 (Principles of Sociology). In addition to a class-handout and an obsolete course number, six of the eight examinations were four years old and from an instructor no longer a member of the faculty. Two examinations were recent, one by a current instructor. No examinations for upper division courses were present. Other folders evidenced heavy emphasis on business, chemistry, and math courses.
- E. Observer's Conclusions: While lacking in some organizational qualities, the files were adequate and to some degree current. Quantity was not stressed, but apparently those examinations were useful and used.

Largest Sorority

- A. Setting: Housed in an opulent multi-storied building, the files were stored upstairs, in a closet at one end of a recreation-meeting room. Filled to over-flow with odds and ends, the files were contained in one steel filing cabinet. The student using the files was able to use available tables and chairs as study space so long as the meeting room was dormant.
- B. Files: Indexed alphabetically, the manila folders numbered only about 150, but were not sub-divided into course names or numbers, only as "Sociology," "English," and so forth. Mathematics and chemistry were heavily represented.
- C. Access: The files and the meeting room were both unlocked and were readily accessible to all members of the organization.
- D. Contents: The file for "Sociology" contained a term paper for the introductory course, along with thirty-four copies of examinations badly out-dated, the most recent being at least five years old. There were thirteen examinations less than five years old, including two recent final examinations and one very current introductory mid-term. Present also was an outline of a textbook chapter on population problems. No study guides were present at all.
- E. Observer's Conclusions: The files were badly out of date. Yet for the user willing to sift through considerable chaff, there were some sources that might be used to advantage.

Effects of the Knowledge System

The questionnaire consisted of three parts. The first was an original portion posing questions relating to the opinions toward and usage of the knowledge system in question. The second part was a measurement of the respondent's value orientations toward a number of common social circumstances. The statistical analysis consists of three parts: first a discussion of the findings of the opinion survey of the sample; then a discussion of the findings of the Bales and Couch (1969), and Scott (1965) value scales; finally, a number of tangential and secondary effects are examined.

Opinion Survey

The responses on the first portion of the instrument are revealing in several ways. Initially the most obvious feature is the patent similarity of responses between older members and pledges, about which more will be said later. Explanation of the sample's amazing redundancy between members and the initial pledge testing can be only conjecture. The most likely cause, however, is that: (1) those individual students who desire to affiliate themselves with fraternity and sorority living groups are of a remarkably like nature at the outset, or (2) the individual fraternities and sororities select pledges from among those students who are like the members. It is strongly possible that both explanations obtain to some extent, insuring a remarkably homogeneous sample.

The comparison of members' and pledges' responses at the initial administration is revealing, while the change in expressed opinions and views in the pledges' retest is occasionally striking. Note that some sample shrinkage occurred between the first and second administration of questionnaires to the pledge classes.

TABLE I

RESPONSE TO THE QUESTION: "WAS THE PRESENCE OF A TEST FILE GIVEN AS A REASON THAT YOU SHOULD JOIN YOUR FRATERNITY OR SORORITY?"

Response	Meml (%)	ers (No.)	P1e (%)	dges (No.)	Pledge (%)	Retest (No.)
Yes	34.0	(23)	34.0	(23)	21.0	(14)
No	60.0	(40)	63.0	(42)	74.0	(48)
Don't Remember	$\frac{6.0}{100.0}$	<u>(4)</u> (67)	3.0 100.0	<u>(2)</u> (67)	5.0 100.0	<u>(3)</u> (65)

As Table I indicates, exactly 34% of both Members and Pledges replied affirmatively to the question of the test file's role in inducing them to join the organization. Yet, by the time of the Pledge Retest administration only 21% could remember such reasons having been given. At the first testing, an almost identical proportion indicated that no such inducements had occurred (60% and 63%, respectively). With the passage of time the Pledge Retest group responded (74% strong) that no such reasons had been advanced for them to join. Individuals in all groups who failed to recall any such discussions fluxuated from 3% to 6%.

The interpretation of the responses suggest that two things may have occurred. First, with attention having been brought to the know-ledge system by the administration of the questionnaires, the subject's memory may have been clouded regarding the matter. Second, a retouching of the mental image of rush activities may have occurred.

TABLE II

RESPONSE TO THE QUESTION: "HOW OFTEN DO YOU

USE THE TEST FILES?"

Response	Mem (%)	bers (No.)	P1e (%)	dges (No.)	Pledgo (%)	Retest
Never	17.0	(11)	29.0	(19)	20.0	(13)
Once A Semester	24.0	(16)	15.0	(10)	33.0	(22)
Several Times A Semester	46.0	(31)	43.0	(29)	43.0	(28)
Every Few Weeks	13.0 100.0	<u>(9)</u> (67)	13.0 100.0	<u>(9)</u> (67)	4.0 100.0	<u>(3)</u> (65)

An examination of Table II reveals a somewhat mixed series of opinion responses. With the exception of the "Several Times A Semester" category, there appears to exist little consistency anywhere in the sample. Yet a more detailed study suggests that in the categories "Never" and "Once A Semester" there is a perceptible drift among Pledges in the direction of the expressed opinions of the Members. It is curious that the percentage of frequent users among pledges declined to 4% by the time of the Pledge Retesting. Significantly, the largest and most consistent concentration appears in the individuals in all groups who make use of the knowledge system "Several Times A Semester."

TABLE III

RESPONSE TO THE QUESTION, "HAVE YOU EVER FELT THAT THERE
WAS ANYTHING WRONG (OR IMMORAL) ABOUT USING
THE TEST FILES?"

Response	Mem (%)	bers (No.)	Ple (%)	dges (No.)	Pledge (%)	Retest (No.)
Yes, Often	1.0	(1)	0.0	(0)	0.0	(0)
Yes, Occasionally	5.0	(3)	6.0	(4)	8.0	(5)
No, Or Never Con- sidered It	94.0	<u>(63)</u> (67)	94.0 100.0	(63) (67)	92.0 100.0	<u>(60)</u> (65)

The responses to the question presented in Table III again demonstrate a remarkable similarity among the three samples. Between Members and the first Pledge testing responses varied only 2% overall. Noticeable also is the fact that exactly 94% of both Members and Pledges either had never considered or felt guilt in the usage of the test files. Only minimal changes (in light of sample size) had taken place by the Pledge Retest administration. The impact of this topic may have been diminished by the recent development of test files in the unaffiliated student residence halls.

TABLE IV

RESPONSE TO THE QUESTION: "DO YOU FEEL THAT ALL INSTRUCTORS SHOULD BE REQUIRED TO PLACE OLD TESTS ON FILE IN THE LIBRARY SO THAT ANYONE COULD SEE THEM BY SIMPLY CHECKING THEM OUT?"

Response	Members (%) (No.)	Pledges (%) (No.)	Pledge Retest (%) (No.)
Yes	48 . 0 (32)	51.0 (34)	46.0 (30)
No	24.0 (16)	25.0 (17)	19.0 (12)
No Opinion	28.0 (19) 100.0 (67)	$\frac{24.0}{100.0}$ (16)	35.0 (23) 100.0 (65)

Responses to the suggestion that instructors be required to place examinations on file for the general student body were received with mixed reactions. For members, almost half (48%) responded affirmatively while one-fourth (24%) answered negatively. The initial responses of the Pledges was one of almost exact agreement with an average of only 3% variation in each category of answers. The Pledge Retest revealed, however, that a small drift toward ambivalence had occurred. That is, the percentage of agreement among Pledges had slipped from 51% to 46% (to a point lower than Members), while the percentage of disagreement among Pledges had fallen from 25% to 19%. Those Pledges expressing no opinion increased by 11% from first to second testing. The reasons for such a shift may be many, the most obvious being a possible disillusionment with the test file system in which its promosed effects were over-represented.

TABLE V

RESPONSE TO THE QUESTION, "DO THE TEST FILES HELP?"

Response	Mem (%)	bers (No.)	Ple (%)	dges (No.)	Pledge (%)	Retest (No.)
Yes	76.0	(51)	60.0	(40)	60.0	(39)
No	7.0	(5)	3.0	(2)	12.0	(8)
Can't Tell	17.0 100.0	(11) (67)	37.0 100.0	(25) (67)	28.0 100.0	(18) (65)

Table V displays the responses from the query, "Do the test files help?" Among Members, fully three-fourths replied that the test files were helpful (76%). Only 7% of the Members replied negatively, while some 17% indicated that they were unable to distinguish any effects. The first Pledge testing revealed that a smaller percentage (60%) than Members saw the test files as helpful and only 3% saw no value in their use. More than one-third (37%) said that the effects were not definable. By the occasion of the readministration of Pledge questionnaires, those finding no help in the utilization of the files had quadrupled (from 3% to 12%). The additional individuals in the negative category came from those previously replying "can't tell" (from 37% to 28%). Pledges having found the test files of some use remained constant at 60%.

One trend is clear from Table V. The longer a respondent was exposed to the test files, the more clear-cut were the effects. Note that among older Members the "can't tell" category contained only 17% and that Pledge percentages by Pledge Retest were changing in the Members' direction.

TABLE VI

RESPONSE TO THE QUESTION: "HOW RELIABLE IS THE INFORMATION IN THE FILES?"

	Members			dges		Pledge Retest	
Response	(%)	(No.)	(%)	(No.)	(%)	(No.)	
Excellent	13.0	(9)	12.0	(8)	14.0	(9)	
Alright	66.0	(44)	52.0	(35)	49.0	(32)	
Fair	13.0	(9)	9.0	(6)	21.0	(14)	
Poor	5.0	(3)	6.0	(4)	5.0	(3)	
No Opinion	3.0	(2)	21.0	<u>(14)</u>	11.0	(7)	
	100.0	(67)	100.0	(67)	100.0	(65)	

In response to a question probing the reliability of information in the test files, an interesting trend was suggested. Among all three groups of respondents the percentage agreeing that the files' reliability was "excellent" was nearly identical, (13%, 12%, and 14%, respectively). The categories "alright" and "fair" appear singularly meaningless until combined, wherein 79% of the members so replied, contrasted with 61% of the Pledges, and 70% at the Pledge Retesting. There had been a discernable shift in the direction of the opinions held by the Members. All responses to the "poor" category ranged only from 5% to 6%.

As in Table V, there was a tendency for Pledges to reduce their expressed ambivalence from initial to second testing (from 21% to 11%). Thus, in Tables V and VI the passage of time had a similar effect on Pledges in that there was a parallel tendency. The tendency was toward the diminution of ambiguity of opinion, with a movement in the direction of the levels of expressed ambiguity of Members.

TABLE VII

RESPONSE TO THE QUESTION: "WHEN ANOTHER FRATERNITY OR SORORITY MEMBER ASKS IF AN ELECTIVE COURSE IS A GOOD ONE, DOES HE MEAN AN EASY ONE OR AN EFFECTIVE COURSE?"

Response	Meml (%)	oers (No.)	Pleo (%)	dges (No.)	Pledge (%)	Retest (No.)
Usually Easy	46.0	(31)	61.0	(41)	49.0	(32)
Usually Effective	54.0 100.0	(36) (67)	39.0 100.0	(26) (67)	51.0 100.0	(33) (65)

The question motivating Table VII was used to determine if the ideals of the Pledges tended to be altered in the face of experience. Pledges and Members were asked if a recommended course's desirability was based on its content and requirement simplicity or on effectiveness. That most new pledges had not asked nor been asked the question was indicated by the broad disparity in responses in Table VII between the Members and Pledges, the variation averaging 15%. Yet by the time retesting had occurred the variation between Members and Pledge Retest sampling responses was a mere 3%. Obviously some opinional transformations had occurred, brought about, apparently, by a readjustment of Pledges' preconceptions. While new Pledges expected Members to be nearly twice as likely to want easy as opposed to effective course, they discovered, in point of fact, that group Members are about as likely to prefer an effective course as an easy course.

Primary Effects

The Bales and Couch Scale

The second portion of the research instrument consisted of a valueprofile scale designed by Bales and Couch (1969). The scale measured
four value-factors. These value-factors were (1) acceptance of authority, (2) need-determined versus value-determined restraint, (3) equalitarianism, and (4) individualism. Constructed of Likert scalings, forty
items were used from the original 240. Within the expectations of this
study, the hypothetical effects of the knowledge system would be visible
in value orientations of Pledges. Such value orientations would be anticipated to gravitate from a differential position to one similar to
those held by Members.

In the initial analysis of the data a three-factor factorial was used to control (or to separate out the effects of) Grade Point Average (G.P.A.), group membership, and frequency of usage of the knowledge system. The findings of this analysis are presented in the following tables. All significance levels indicated are at $\ll 0.05$.

TABLE VIII

BALES AND COUCH VALUE-PROFILE CONTROLLING FOR G.P.A., GROUP MEMBERSHIP, AND KNOWLEDGE-SYSTEM USAGE

	G.P.A.	Group Membership	Frequency of usage
Acceptance of Authority	N.S.	N. S.	N.S.
Need-Determined Vs. Value-Determined Expression	N.S.	N.S.	N.S.
Equalitarianism Individualism	N.S.	N. S. N. S.	SIG. N.S.

The examination of Table VIII demonstrates that only one of the four Bales and Couch value-factors--"equalitarianism"--was found to exhibit a statistical significance. The removal of the effects of A.C.T. scores was seen to strongly effect the analysis.

In the second analysis of the Bales and Couch scale, two changes were made. First, A.C.T. test scores were added as an independent variable for analysis while G.P.A. scores were dropped. Second, the categories of frequency of usage of knowledge system were collapsed from four to two (representing "heavy" and "light" usage) in order that adequate cell sizes be maintained insofar as possible. The same four value factors were retained.

TABLE IX

BALES AND COUCH VALUE-PROFILE SCALE CONTROLLING A.C.T. SCORES,

GROUP MEMBERSHIP, AND KNOWLEDGE-SYSTEM USAGE

	A,C,T,	Group Membership	Frequency of usage
Acceptance of Authority	N.S.	N.S.	N.S.
Need-Determined Vs. Value-Determined Expression	N.S.	N.S.	N.S.
Equalitarianism	N.S.	N. S.	N.S.
Individualism	N.S.	N.S.	N. S.

In Table IX it may be seen that in removing the presumed effects of the qualities represented by A.C.T. scores, none of the three dependent variables were found to exhibit statistical significance. No loading on any of the value-factors was in evidence.

Scott Value Scale

Part II of the research instrument was comprised of a value-profile scale by Scott (1965). The theoretical orientations presented earlier suggest that a significant variation might be anticipated between the older Members and the Pledges at Retest. Excluding the effects of A.C.T. and G.P.A. scores, both presumed to be potentially influential variables.

The first set of analyses of variance using the Scott Value Scale used a three-factor factorial to simulaneously control for three effects. The following table details the findings.

TABLE X

SCOTT VALUE SCALE CONTROLLING FOR G.P.A., GROUP MEMBERSHIP, AND KNOWLEDGE-SYSTEM USAGE

	G.P.A.	Group Membership	Frequency of us a ge
Intellectualism	N.S.	N.S.	N.S.
Social Skills	N.S.	N.S.	N.S.
Loyalty	N.S.	N.S.	N.S.
Academic Achievement	N.S.	N.S.	N.S.
Status	N.S.	N.S.	N.S.
Honesty	N.S.	N.S.	SIG.
Religiousness	N.S.	SIG.	N.'S.'
Self-control	N.S.	N.S.	SIG.
Independence	SIG.	N.S.	N.S.

A discussion of Table X is revealing if for no other reason than it displays a remarkable absence of statistically significant findings.

That there should be only one value-factor exhibiting a F-value of significance-on "independence"--is not particularly surprising.

By the same token, an examination of the relative effects of group membership yields the finding that neither "social skills" nor "status" seem to weigh most heavily. Rather, "religiousness" exhibits statistical significance.

In light of the theoretical grounding of this study, the strongest and most meaningful findings might be anticipated under the category of frequency of usage (of the knowledge system), assuming a valid knowledge system. Two value-loadings from among others is not readily discernable, but will be later discussed.

As Table XI clearly demonstrates, whatever the effects presumed to be seen in Table X were removed by the substitution of A.C.T. for G.P.A. as a controlling variable. Just as when A.C.T. was used as a control on Bales and Couch scaling items, all statistical effects were eliminated. It is obvious that whatever its other uses, A.C.T. scores are apparently a useful control of random effects in analysis of variance.

TABLE XI

SCOTT VALUE SCALE CONTROLLING FOR A.C.T., GROUP MEMBERSHIP, AND KNOWLEDGE-SYSTEM USAGE

	A.C.T.	Group Membership	Frequency of usage
Intellectualism	N.S.	N.S.	N.S.
Social Skills	N.S.	N.S.	N.S.
Loyalty	N.S.	N.S.	N.S.
Academic Achievement	N.S.	N.S.	N.S.
Status	N.S.	N.S.	N.S.
Honesty	N.S.	N.S.	N.S.
Religiousness	N.S.	N.S.	N.S.
Self-control	N.S.	N.S.	N.S.
Independence	N.S.	N.S.	N.S.

Summary of Primary Effects

The Bales and Couch scales were found to demonstrate some measurable knowledge-system effects. With G.P.A. controlled, only one value-factor was seen to be affected in a removal of all measurable effects. Thus, in the Bales and Couch value scale, one value-factor from among a potential twenty-four was found to be affected by dependent variables.

In the Scott scale, the control of G.P.A. resulted in the finding that one value-factor ("independence") was seen to be influential by grades. One value-factor ("religiousness") was influential by group membership. Two value-factors ("honesty" and "self-control") were seen to be affected by the frequency of knowledge-system usage. With the substitution of A.C.T. scores as a controlling variable, all statistical significance was eliminated. Only a small percentage of possible effects were seen to occur. There were changes in only four out of a possible fifty value-factors and dependent variables.

Secondary Effects

As the preceding section suggests, there was limited evidence of anticipated direct effects of the fraternity knowledge system. Given, however, that this study was conceptualized as exploratory, a great deal of additional data was generated. "Secondary Effects" reports the analysis of data meeting tangential goals, for alternate routes were deemed acceptable in the determinations of change in the respondent groups over time.

Using the means for groups M, PI, and PII (Members, Pledges, and Pledge Retest) produced by ANVAR 23, comparisons were made using the three groups. The initial comparison in Table XII presents the group

means for Bales and Couch Value Profile Scale.

TABLE XII

MEANS FOR BALES AND COUCH VALUE PROFILE SCALE BY GROUP MEMBERSHIP CONVERTED TO STANDARD BASE (100)

	M (Members)	PI (Pledges)	PII (Pledge Retest)
Acceptance of Authority	61.28	60.65	58.38
Need-Determined Vs. Value-Determined Expression	57.93	59.86	61.45
Equalitarianism	55.25	56.01	53.25
Individualism	63.35	60.76	61.08

To the first two sets of means, for "acceptance of authority," and "need-determined vs. value-determined expression," little can be added or deduced. The M and PI scores are so similar that either a repetition of scores or a differentiation of means was inevitable by PII testing.

However, in the means of the latter two value-factors--"equalitarianism" and "individualism"--two meaningful trends are suggested.

First, there is a definite tendency for PII means to demonstrate a numerical movement in the direction of the mean positions of members.

Examples in the Bales and Couch Scale are "equalitarianism" and "individualism." The drift is seen to have occurred in the interim between PI and PII testing, a period of some three months.

Second, among those value-factors where means tend to change in the direction of Members' means, a number of them tend also to demonstrate another tendency. As illustrated by "equalitarianism," the PII mean not only changes its direction to parallel the M mean, but, indeed, the PII mean exceeds that of the Members. One example suffices in the Bales and

Couch Scale, while more are presented in the Scott Value Factor Scale that follows.

The value-factor mean for the "Acceptance of Authority" factor suggests in older members a stronger appreciation for the use of authority in group settings. By the same token, there is demonstrated among Pledges a steadily diminishing "acceptance of authority" appreciation. In a demonstration of consistency, the value-factor "need-determined vs. value-determined expressions" suggests that there is in Members a tendency to perceive a need for individual conduct in accordance with genuine value-orientations as opposed to the exigencies of immediate need. PI and PII means show an increasing appreciation for a situation specific expression based on momentary needs. In both "acceptance of authority" and "need-determined vs. value-determined expression" means, there is an obvious value-conflict between Members and Pledges with regard to the two value-factors.

A visual examination of Table XIII reveals that both trends suggested in the Bales and Couch Value Profile (Table XII) are more represented in the means of the Scott Scale. Of the total of nine value-factors in the scale, fully eight (excluding "independence") manifest evidence of the first tendency. That is, in 88% of the value-factor means, there was a tendency for PI means to shift by the PII testing in the direction of expressed values of Members. Importantly, three of the eight value-factors also validated the second trend. "Intellectualism," "honesty," and "self-control" loadings tended to change so dramatically that by PII testing expressed values among Pledges became stronger than those of Members. There was also an unusual shifting of the relative ordering among the value-factors. Table XIV presents the

relative rank orderings of value-factors for the Scott scale only, and depicts some rather interesting over-time changes in relative rankings.

TABLE XIII

MEANS FOR SCOTT VALUE SCALE BY GROUP MEMBERSHIP
CONVERTED TO STANDARD BASE (100)

	M (Members)	PI (Pledges)	PII (Pledge Retest)
Intellectualism	51.50	50.50	53.16
Social Skills	58.91	56.83	58.83
Loyalty	53.44	52.33	52.77
Achievement	47.83	48.08	47.91
Status	45.77	44.44	45.33
Honesty	37.33	38.33	35.66
Religion	41.33	48.73	47.40
Self-control	47.66	49.83	46.83
Independence	33.44	33.88	38.48

TABLE XIV

RELATIVE RANKINGS OF VALUE-FACTORS IN SCOTT VALUE

SCALE BY STRENGTH OF RESPONSE*

	M (Members)	PI (Pledges)	PII (Pledge Retest)
Intellectu a lism	3	3	2
Social Skills	1	1	1
Loyalty	2	2	3
Achievement	4	6	4
Status	6	7	7
Honesty	8	8	9
Religion	7	5	5
Self-control	5	4	6
Independence	9	9	8

^{*}Scale represented is ordinal.

There was a tendency for Members to most highly regard "social skills," "loyalty," and "intellectualism" in that order. Members tended to least favor "independence," "honesty," and "religion," respectively.

On the occasion of the initial Pledge testing the most favored value items appeared to be "social kills," "loyalty," and "intellectualism," while "status," "honesty," and "independence" were the least favored value factors.

By the time of the Pledge Retest, "social skills," "intellectualism," and "loyalty" were most highly ordered. Least acceptable were
"status," "independence," and "honesty."

Generalizations regarding Tables XII, XIII, and XIV may be tenuous,

but the following appears to be suggested. First, there is a tendency for Pledges, already remarkably similar in background, orientation, and associations, to manifest values increasingly parallel to those of older Members. Second, another trend suggests that there exists a degree of super-identification with collective values by Pledges. Such an overcompensation by Pledges has been alluded to in the research of a number of group studies normally identified with social psychology. For example, Newcomb (1943) found that Bennington College girls from politically conservative homes tended to reverse their political attitudes under group pressure at college. Further, Newcomb found that there was a marked tendency for Bennington girls to politically overcompensate. The most conservative freshmen girls were frequently the most liberal seniors. Newcomb (1963) concluded that the changes he observed twenty years earlier were more or less permanent. Third, there appears to be patternings to the rankings of value-factors as seen in Table XIV. These patterns suggest that the personal attribute "social skills" is consistently and supremely valued by Members and Pledges alike. Among members of organizations which stress the social and inter-active arts, such findings should not be surprising. Also very highly regarded values to possess include "loyalty," and "intellectualism," the former being a personality trait particularly nurtured by fraternities and sororities. The second may be the product of new and sweeping non-fraternal movements on many campuses. Interesting, also, are the value-factors receiving the least relative favor. In a highly integrated in-group situation, the value of personal "independence" may be questionable where it tends to prove disruptive. The mean rankings tend to support this view. Curious and inexplicable is the low relative weighting attached to "honesty."

Finally, the comparison of group-related means for Bales and Couch's and Scott's scales revealed subtle and suggestive findings. Assuming the validity of the instruments and their grounding assumptions, a number of pertinent questions have been raised for further research.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary of the Findings

The summary of the findings is divided into two sections. The first part, "Statistical Significance," treats the findings in the traditional manner of statistically significant at the .05 level will be discussed. Next, in a section entitled "Substantitive Significance," those effects not able to be interpreted nor detectable through hypothesis-testing methods will be examined.

Statistical Significance

The findings are here summarized by primary and then by secondary effects.

The use of the Bales and Couch Value Profile to distinguish value change over time was not particularly successful. In controlling for primary effects, the factorial analysis of variance was unable to detect any measurable differences when A.C.T. scores were included. Only one value-factor, "equalitarianism," was statistically significant when G.P.A. was included.

The use of Scott's Value Scale was marked with somewhat more success. When the effects of G.P.A. were removed, two value-factors were significantly affected by frequency of usage, these being "honesty" and "self-control." One value-factor was seemingly affected by group

membership ("religiousness"), and one value-factor by G.P.A. levels ("independence"). The substitution of A.C.T. scores for G.P.A. as a controlling variable removed all effects of all three independent variables upon the value-factors as measured by statistical significance.

The secondary effects were more strongly demonstrated and clearly defined. For example, the use of the Bales and Couch scale means by group membership revealed that a trend was present. There was a marked tendency for two of the four Bales and Couch value-loadings ("equalitarianism" and "individualism") to show Plepses' means changing in the direction of Members' mean scores. The first of those two also demonstrated another trend, where the Pledge Retest score was seen to exceed the Members' mean score.

The trend established in the Bales and Couch scale was strongly echoed in the Scott Value Scale, when fully eight of nine value factors were found to change at Pledge Retesting in the direction of Members' means. The validation of the second trend was accomplished when three of the eight value-factors (including "intellectualism," "honesty," and "self-control") also exhibited stronger PII means than Member means.

Finally, then, the findings of the primary and secondary effects of the Bales and Couch scale were of little impact when G.P.A. was used as a controlling variable, of no measurable impact when A.C.T. was substituted for G.P.A. Secondary effects as seen in the Bales and Couch scale were the most obvious and telling of all contrasts. Comparing Pledges' means for nine value-factors, fully eight demonstrated tendency of directional movement toward parity with Members' means.

Substantitive Significance

Controversies over significance tests often center on the assumption that the probability of β -errors (the likelihood of accepting a false null hypothesis) should be minimized in all research. Yet much exploratory research could benefit from the acceptance of a reduced level such that the probability of β -error is increased, while the opportunities of discovery concomitantly rise. That is, an alternative point of view which could lead to different conclusions, particularly in fairly homogeneous populations, is to begin the testing process by assuming the existence of slight differences, rather than no differences. The use of such a perspective is responsible for the discussion that follows.

The reason for setting \prec at .05 was to filter out a number of discernable effects among the variables under examination. It also made a number of interactive effects between the same categories possibly less obvious.

Viewing them, however, in a less stringent light, some measurable variances were seen to exist. For instance, in Table IX, entitled, "Bales and Couch Value-Profile Scale Controlling A.C.T. Scores, Group Membership, and Knowledge-System Usage," the loadings on two value-factors were numerically high, but failed to achieve statistical significance. These were "need-determined versus value-determined expression" on frequency of usage, and "equalitarianism" on group membership. In addition, on Bales and Couch value-factors in the scale, all except "acceptance of authority" demonstrated a tendency to show high interactions between A.C.T. scores and frequency of usage, suggesting that the effects are not completely independent.

Viewing Table X, "Scott Value Scale Controlling for G.P.A., Group Membership and Knowledge-System Usage," a number of factor loadings were again very high but not statistically significant. Among these were the following: "academic achievement" relating to frequency of usage, "honesty" relating to G.P.A., "religiousness" relating to frequency of usage, and "independence" relating to both "group membership" and "frequency of usage." The last loadings, however, were offset by the fact that there were interactive effects between G.P.A. and both group membership and frequency of usage.

Table XI, entitled "Scott Value Scale Controlling for A.C.T., Group Membership, and Knowledge-System Usage" found two numerically high loadings not statistically significant at .05. On the value-factor "social skills," both A.C.T. and frequency of usage were noticeably high. In addition, there was evidence that A.C.T. score effects were not completely independent of group membership and frequency of usage with regard to the value-factor "intellectualism." Group membership and frequency of usage also appeared to be interactive with respect to the value-factor "loyalty."

Finally, using levels of less than .05, only nine more value factors (out of fifty possible) were added, with the evidence of interactive effects eliminating the clear-cut nature of many of the findings. Thus, only thirteen factors out of fifty could be said to have exhibited measurable effects using either criteria for decision-making. The obvious conclusion is that the sociological effects of the knowledge system in question are minimal, as measured by the value orientations on the Bales and Couch and Scott Value scales.

Conclusions

The utilization of analysis of variance as a statistical tool for the interpretation of the data may have been unfortunate. The reason is that analysis of variance is best suited to the detection of great differences in heterogeneous populations. While college students as a group form a rather homogeneous aggregation, those students engaged in fraternity and sorority activities appear to be infinitely more alike than even the balance of the student body. Given these circumstances, analysis of variance may have been somewhat insensitive to the smaller variations in the sample.

Nevertheless, two major conclusions may be drawn from the findings. First, the primary effects of the knowledge system were few, and those appearing point to one startling suggestion—the test files (as a knowledge system) are largely a myth. This conclusion is reinforced by viewing Table X, where an otherwise inexplicable value—factor ("independence") was strongly linked to G.P.A., while the frequency of usage was repeatedly demonstrated to have little or no effect on value factors even when less stringent levels were used. Further, the substitution of A.C.T. for G.P.A. scores in Table XI resulted in the total negation of statistically significant effects. Thus, a measure reflecting individual ability successfully destroyed the few remaining effects of the knowledge system.

That the mythical nature of the files (as a knowledge system) is particularly salient is shown by the strongly expressed beliefs by members in the system's potency (Table V), reliability (Table VI) and necessity of restriction (Table IV). The implications of such a finding are profound and can only be hinted at in the "Suggestions for Further"

Research." Yet the direct impact is to lead observers to question other knowledge systems' potency, regardless of their presumed and possibly mythical effects.

Next, the tendency suggested in Chapter V of new members to experience a period of over-identification with group norms is complimentary to the conclusion that the effects of test files are mythical. That is, if the new member undergoes a period of resocialization by the group, he will be expected to accept collective beliefs, among them the potency of the knowledge system here examined. That new members more strongly accept the myth the longer they are members is understood in light of the fact that "social skills" and "loyalty" were the valuefactors (Table XIV) consistently selected by all groups as most desirable. Individual acceptance of the myth may mean that personal experience to the contrary is dismissed and the myth reinforced, whenever consistent with fact.

The leadership of these organizations may utilize and perpetuate the myth because (1) they do not know it is a myth, or they feel it is a comfort to the members, (2) they feel it serves as a good public relations mechanism, or (3) the myth may serve as an effective means of manipulation and control of the members.

The two previous views lead to the conclusion that empirical evidence has validated W. I. Thomas's dictum that "If men believe situations are real, they will be real in their consequences" (Thomas and Thomas, 1928:572). Members of organizations who accept the organizations' myths apparently come to feel the potency of the mythical trait.

Finally, this study has tended to focus only on the sociological facet of the files, such that only in sociological terms can the files

be said to be mythical. Study of the substantive academic and other effects might yield valuable results.

Suggestions for Further Research

The implication that the test files as a knowledge system may be largely a collective myth is highly provocative to the social scientist. It suggests that similar research might focus on other knowledge systems (albeit less bounded and convenient) to discover if their widely presumed potency might also prove illusionary. Among these are schools (of all sorts), labor unions, and mass media and information sources.

The principal difficulty in the research of these knowledge systems is that a large scale knowledge system requires money, time and access not normally available to unfunded research. In addition, more responsive measures than value-shifts should be utilized, including measurement of changes in social structure or alterations in interaction processes. New scales and methodologies must be devised specifically for measuring effects due to knowledge systems. Only through rigorously constructed research will the sociology of knowledge be widely accepted as an empirical aid to social understanding.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

Pa	art	Ι
	** -	_

Instructions: Please respond to each question in an honest and candid manner. All answers will be kept strictly confidential, and neither an individual nor an organization will be identifiable. Try to leave nothing blank.

not	hing blank.
1.	When you started to pledge your fraternity or sorority, was the presence of a test file and other sources given as a reason that you should join?
	yes no don't remember
2.	How often do you use the test file?
	neveronce a semesterseveral times a semesterevery few weeks
3.	How prevalent is the practice of simply approaching some fraternity or sorority brother (or sister) for information or old test results?
	never done rarely common very frequently
4.	Have you ever felt that there was anything wrong (or immoral) about using the test files, since most students do not have access to them?
	yes, often yes, occasionally no, or never considered it
5.	Do you feel that all instructors should be required to place old tests on file in the library so that anyone could see them by simply checking them out?
	yes no no opinion
6.	Do the test files help?
	yesnocan't tell

7.	Where	do	most	of	the	tests	a nd	other	material	in	the	files	come
	from?												

8.	How	reliable	is	the	information	in	the	files?
----	-----	----------	----	-----	-------------	----	-----	--------

exc	ellent	a lright	on1y	fair	poor
no	opinion				

9. When a fraternity (or sorority) brother (or sister) asks if a non-major or elective course is a good one, does he mean that it is an easy or an effective course?

usu all y	easy	usu all y	effective

Part II

Directions: The questionnaire is designed to measure the extent to which you hold each of several general attitudes or values common in our society. On the following pages you will find a series of general statements expressing opinions of the kind you may have heard from other persons around you. After each statement there is a set of possible responses as follows:

Strongly Dis a gree	Disagree	Slightly Dis a gree	Slightly Agree	Agree	Strongly Agree
t a					
6	5	4	3	2	1

You are asked to read each of the statements and then to <u>circle</u> the response which best <u>represents</u> your immediate reaction to the opinion expressed. Respond to each opinion as a whole. If you have reservations about some part of a statement, circle the response which most clearly approximates your <u>general feeling</u>.

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
10.	Obedience and respect for authority are the most important virtues children should learn.	6	5	4	3	2	1
11.	There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.	6	5	4	3	2	1

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
12.	What youth needs most is strick discipline, rugged determination, and the will to work and fight for family and country.	6	5	4	3	2	1
13.	You have to respect authority and when you stop respecting authority, your situation isn't worth much.	6	5	4	3	2	1
14.	Patriotism and loyalty are the first and the most important requirements of a good citizen.	6	5	4	3	2	1
15.	Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.	6.	5	4	3	2	1
16.	A child should not allowed to talk back to his parents, or else he will lose respect for them.	6	5	4	3	2	1
17.	The facts on crime and sexual immorality show that we will have to crack down harder on young people if we are going to save our moral standards.	6	5	4	3	2	1
18.	Disobeying an order is one thing you can't excuseif one can get away with disobe-dience, why can't everybody?	6	5	4	3	2	1
19.	A well-raised child is one who doesn't have to be told twice to do something.	6	5	4	- 3	2	1
20.	Since there are no values which can be eternal, the only real values are those which meet the needs of the given moment.	6	5	4	3	2	1
21.	Nothing is static, nothing is everlasting, at any moment one must be ready to meet the change in environment by necessary change in one's moral views.	6	5	4	3	2	1
22.	Let us eat, drink, and be merry, for tomorrow we die.	6	5	4	3	2	1

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
23.	The solution to almost any human problem should be based on the situation at the time, not on some general moral rule.	6	5	4	3	2	1
24.	Life is something to be enjoyed to the full, sensuously enjoyed with relish and enthusiasm.	6	5	4	3	2	1
25.	Life is more a festival than a work-place or a school for moral discipline.	6	5	4	3	2	1
26.	The past is no more, the future may never be, the present is all that we can be certain of.	6	5	4	3.	2	1
27.	Not to attain happiness, but to be worthy of it, is the purpose of our existence.	6	5	4	3	2	1
28.	No time is better spent than that devoted to thinking about the ultimate purposes of life.	6	5	4	3	2	1
29.	Tenderness is more important than passion in love.	6	5	4	3	2	1
30.	Everyone should have an equal chance and an equal say.	6	5	4	3	2	1
31.	There should be equality for everyone because we are all human beings.	6	5	4	3	2	1
32.	A group of equals will work a lot better than a group with a rigid hierarchy.	6	5	4	3	2	1
33.	Each one should get what he needsthe things we have belong to all of us.	6	5	4	3	2	1
34.	No matter what the circumstances, one should never arbitrarily tell people what they have to do.	6	5	4	3	2	1
35.	It is the duty of every good citizen to correct anti-minority remarks made in his presence.	6	5	4	3	2	1

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree		Strongly Agree
36.	Poverty could be almost entirely done away with if we made certain basic changes in our social and economic system.	6	5	4	3	2	1
37.	There has been too much talk and not enough real action in doing away with racial discrimination.	6	5	4	3	2	1
38.	In any group it is more important to keep a friendly atmosphere than to be efficient.	6	5	4	3	2	1
39.	In a small group there should be no real leaderseveryone should have an equal say.	6	5	4	3	2	1
40.	To be superior a man must stand alone.	6	5	4	3	2	1
41.	In life an individual should for the most part "go it alone," assuring himself of privacy, having much time to himself, attempting to control his own life.	6	5	4	3	2	1
42.	It is the man who stands alone who excites our admiration.	6	5	4	3	2	1
43.	The rich internal world of ideas, of sensitive feelings, or reverie, of self knowledge, is man's true home.	6	5	4	3	2	1
44.	One must avoid dependence upon persons or things, the center of life should be found within oneself.	6	5	4	3	2	1
45.	The most rewarding object of study any man can find is his own inner life.	6	5	4	3	2	1
46.	Whoever would be a man, must be a non-conformist.	6	5	4	3	2	1
47.	Contemplation is the highest form of human activity.	6	5	4	3	2	1
48.	The individualist is the man who is most likely to discover the best road to a new future.	6	5	4	3	2	1

Disagree		Disagree	Agree		Agree
Strongly	Disagree	Slightly	Slightly	Agree	Stronely
_	_		_	_	

49. A man can learn better by striking out boldly on his own than he can by following the advice of others.

Part III

Instructions: Please read over the following statements, and for each one indicate (by a check in the appropriate space) whether it is something you can always admire in other people, or something you always dislike or something that depends on the situation whether you admire it

	Always Admire	Depends on Situation	Always Dislike	-
50.		*****	destructive description descriptions	Having a keen interest in internation- al, national, and local affairs.
51.	-	*****		Having a strong intellectual curiosity
52.				Developing an appreciation of the fine artsmusic, drama, literature, and ballet.
53.		C		Having an active interest in all things scholarly.
54.	***************************************			Being well mannered and behaving properly in social situations.
55.			·	Dressing and acting in a way that is appropriate to the occasion.
56.			**************************************	Being able to get people to cooperate with him.
57.			***********	Being poised, gracious, and charming under all circumstances.
58.	· · · · · · · · · · · · · · · · · · ·	toward and the same of the same		Defending the honor of one's group whenever it is unfairly criticized.
59.				Working hard to improve the prestige and status of one's groups.

	•	Depends on Situation	Always Dislike	
60.				Helping organize group activities.
61.			. 	Studying hard to get good grades in school.
62.				Striving to get the top grade- point average in the group.
63.				Working hard to achieve academic honors.
64.				Studying constantly in order to be- come a well educated person.
65.				Being respected by people who are themselves worthwhile.
66.	•			Gaining recognition for one's achievements.
67.				Being in a position to direct and mold others' lives.
68.			***************************************	Always telling the truth, even though it may hurt oneself or others.
69.				Never telling a lie, even though to do so would make the situation more comfortable.
70.	-	to the second second		Helping a close friend get by a tight situation, even though one may have to stretch the truth a bit to do it.
71.				Being devout in one's religious faith.
72.		****		Always living one's religion in his daily life.
73.		Market and the same of the sam	***************************************	Always attending religious services regularly and faithfully.
74.				Avoiding the physical pleasures that are prohibited in the Bible.
75.				Encouraging others to attend services and lead religious lives.
76.		to the total and and and		Practicing self-control.

•	Always Admire	Depends on Situation	•	
77.				Replying to anger with gentleness.
78.			***************************************	Never losing one's temper, no matter what the reason.
79.				Not expressing anger, even when one has a reason for doing so.
80.				Being outspoken and frank in expressing one's likes and dislikes.
81.	 -			Thinking and acting freely, without social restraints.
82.	- turauitus ana	·		Conforming to the requirements of any situation and doing what is expected of one.

APPENDIX B

INTERVIEW SCHEDULE

Instructions read to interviewee: The following series of questions are made up to study some aspects of life in a Greek organization, and are not to be used by anyone but the researcher. All information will be coded, and no one will be able to tell from what organization, or even which individual gave what information. Absolute privacy is assured. Please answer honestly, and do not feel that you answers can hurt or help your organization, for only untrue answers can hurt your organization.

What are the major reasons you would give for attending college?

What do you like about fraternity (or sorority) life?

How does your campus life differ from that of the independent?

Which is stronger among fraternities or sororities members, loyalty to the university or the organization? How about you personally?

How do you spend the average day in a school year?

How much time do you spend studying in an average week (estimate the number of hours per day and per week)?

Do you arrange your course schedules so as to allow for fraternity or sorority activities? Do you ever limit your course hours for the same reasons?

Do you feel that as a non-fraternity or sorority member you would perform better gradewise?

There appear to be some strange events involved in getting some tests. How are most tests obtained? How are the others obtained?

APPENDIX C

December 15, 1971

Dear

This letter is being sent to you in an effort to solicit your cooperation in conducting a research project among fraternities and sororities on the Oklahoma State University campus. Supported by the Department of Sociology, with the cooperation of Mrs. Karen Irey (Assistant
Dean of Student Affairs), the project aims at the measurement of certain
attitudes and values. All responses will be coded and strictly confidential.

As for you specifically, the expenditure of time will be very small. Contacts are generally being directed through the Vice-Presidents due to the often excessive work-load of the Presidents.

If you have not already been contacted, then you will be soon, at which time details and arrangements may be made. Your serious consideration and approval is crucial to the success of this study.

Thank you for your time and assistance in this matter.

Sincerely,

William F. Woodman Department of Sociology Oklahoma State University Stillwater, Oklahoma 74074

APPENDIX D

COMPUTER PROGRAM USED TO TRANSFORM DATA FROM ORIGINAL TO REFINED FORMATS

DIMENSION IDATA(89), ISCORE (13) K=01 READ (5,5,END=100) IDATA 5 FORMAT (311, 6X,7111/9X,1511) ISCORE(1)=0DO 10 I=17,2610 ISCORE(1)=ISCORE(1)+IDATA(I) ISCORE(2)=0 DO 15, I=27,3615 ISCORE(2)=ISCORE(2)+IDATA(I) ISCORE(3)=0DO 20 I=37,4620 ISCORE(3)=ISCORE(3)+IDATA(I) ISCORE(4)=0DO 25 I=47,5625 ISCORE(4)=ISCORE(4)+IDATA(I) ISCORE(5)=0DO 30 I=57,6030 ISCORE(5)=ISCORE(5)+IDATA(1) ISCORE(6)=0DO 35 I=61,6435 ISCORE(6)=ISCORE(6)+IDATA(I) ISCORE (7)=0DO 40 I=65,6740 ISCORE(7)=ISCORE(7)+IDATA(I) ISCORE(8)=0DO 45 I = 68,7145 ISCORE(8)=ISCORE(8)+IDATA(I) ISCORE(9)=0DO 50 I=72,7450 ISCORE(9)=ISCORE(9)+IDATA(I) ISCORE(10)=0DO 55 I=75,7755 ISCORE(10)=ISCORE(10)+IDATA(I) ISCORE(11)=0 DO 60 I = 78,8260 ISCORE(11)=ISCORE(11)+IDATA(I) ISCORE(12)=0DO 65 I=83,86

- 65 ISCORE(12)=ISCORE(12)+IDATA(I) ISCORE(13)=0 DO 70 I=87,89
- 70 ISCORE(13)=ISCORE(13)+IDATA(I) K=K+1 WRITE (7.90) (IDATA(I).I=1.16).ISC
- WRITE (7,90) (IDATA(I), I=1,16), ISCORE, K 90 FORMAT (311,6X,1311,7X,1312,23X,112) GO TO 1
- 100 CALL EXIT END

APPENDIX E

COMPUTER PROGRAM USED TO CALCULATE "F"

```
PROGRAM AVAR23
    DOUBLE OR TRIPLE-CLASSIFICATION ANALYSIS OF VARIANCE.
    PARAMETER CONTROL-CARD FIELDS.

COL 1-5 = NUMBER OF DEPENDENT VARIABLES TO BE ANALYZED (MAX = 70).

COL 6-10 = NUMBER OF LEVELS FOR THE A FACTOR (MAX = 10).

COL 11-15 = NUMBER OF LEVELS FOR THE B FACTOR (MAX = 10).

COL 16-20 = NUMBER OF LEVELS FOR THE C FACTOR (MAX = 10).
         SET = 1 FOR DOUBLE-CLASSIFICATION DESIGN.

COL 21-25 = NUMBER OF SUBJECTS PER ABC CELL, IF CELL N ARE ALL EQUAL.

FOR UNEQUAL CELL N SET = 9999 AND ADD A GROUP-CONTROL

CARD IN FRONT OF EACH CELL-SET OF DATA CARDS (COL 1-5 = CELL N1.)
              IF ZERO SCORES ARE TO BE TREATED AS MISSING DATA FOR ANY VARIABLE.
              ADD MINUS SIGN TO THIS FIELD AND ADD OPTION-SIGNAL CARD AFTER
              FORMAT CONTROL CARD (1 = ZERO MEANS MISSING, 0 = ZERO VALID.
             COL 1 = VARIABLE 1. ETC).
    FORMAT MUST SPECIFY NV SCORE FIELDS (FOR ONE SUBJECT).
    ORDER OF CELLS IN DATA DECK = A1B1C1, A1B1C2, A1B2C1, ETC.
     TAPE UNIT 2 IS USED FOR TEMPORARY STORAGE (SCRATCH).
     SUBPROGRAMS REQUIRED ARE PRBF, CCDS, PRTS.
        ODIMENSION KF(16)+ KH(15)+ ZM(70)+ S(10)+ D(10)+ F(10)+ P(10)+
       1 A(10) • R(10) • C(10) • AB(10 • 10) • AC(10 • 10) • BC(10 • 10) • 2 ABC(10 • 10 • 10) • W(70) • R(70) • T(70) • X(70) • SX(70) • SX(70) • SX(70) • G(70) •
       3 GN(10.10.10)
         ND = 10
      5 CALL CCDS (KF+ NV+ NA+ NB+ NC+ NS)
NT = NA * NB * NC
C ZERO ACCUMULATORS AND READ MISSING-DATA OPTIONS.
         DO 10 I = 1.NV
         ZM(1) = 0.0
         T(I) = 0.0
         R(1) = 0.0
     10 W(I) = 0.0
         IF (NS .GT. 0) GO TO 20
         NS = [ABS(NS)
    READ 15. (ZM(I). I = 1.NV)
15 FORMAT (80F1.0)
     20 REWIND 2
C INPUT DATA: CHECK: ACCUMULATE SUMS.
         DO 50 M = 1.NT
     N = NS
IF (N .EQ. 9999) READ 25. N
25 FORMAT (15)
         DO 30 I = 1+NV
         SX(I) = 0.0
         SQ(1) = 0.0
     30 G(I) = N
         DO 35 I = 1 · N
         READ KF. (X(J), J = 1.NV)
    DO 35 J = 1+NV

IF (ZM(J) *EQ* 1*0 *AND* X(J) *EQ* 0*0) G(J) = G(J) - 1*0

SX(J) = SX(J) + X(J)

35 SQ(J) = SQ(J) + X(J)**2
         DO 45 I = 1.NV
IF (G(I) .GT. 0.0) GO TO 40
         ZM(1) = 2.0
         GO TO 45
C ACCUMULATE (1/CELL N) AND CELL VARIANCE.
40 W(I) = W(I) + (SQ(I) - SX(I)##2 / G(I))

R(I) = R(I) + 1.0 / G(I)

C COMPUTE AND TAPE CELL MEAN AND N FOR ALL VARIABLES.

SX(I) = SX(I) / G(I)
    45 T(1) = T(1) + G(1)
    50 WRITE (2) SX+ G
```

C SET PARAMETERS AND DEGREES OF FREEDOM.

```
TN = NT
         AN = NA
         BN = NB
         CN = NC
        D(2) = TN - 1.0

D(3) = AN - 1.0
        D(3) = NN = 1.0

D(4) = BN + 1.0

D(5) = CN + 1.0
         D(6) = D(3) + D(4)
         D(7) = D(3) + D(5)
         D(8) = D(4) * D(5)
         D(9) = D(3) * D(8)
C BEGIN ANALYSES OF DEPENDENT VARIABLES.
         DO 170 N = 1.NV
         IF (ZM(N) .LT. 2.0) GO TO 60
    PRINT 55 N
55 FORMAT ( 31H1INSUFFICIENT DATA FOR VARIABLE 13)
    GO TO 170
60 REWIND 2
DO 65 I = 1+10
         5(1) = 0.0
         A(1) = 0.0
         B(I) = 0.0
         C(1) = 0.0
         DO 65 J = 1.10
         AB(I \cdot J) = 0 \cdot 0
         AC(I+J) = 0.0
    65 BC(I+J) = 0.0
D(1) = T(N) - 1.0
D(10) = T(N) - TN
C COMPUTE 1-SCORE-PER-CELL ANALYSIS AND CELL MEANS.
DO 70 I = 1.NA
        DO 70 J = 1.NB
DO 70 K = 1.NC
         READ (2) SX. G
         GN(I_{\bullet}J_{\bullet}K) = G(N)
         S(2) = S(2) + SX(N) **2
         A(I) = A(I) + SX(N)
         B(J) = B(J) + SX(N)
        C(K) = C(K) + SX(N)
         AB(I \cdot J) = AB(I \cdot J) + SX(N)
    AB(1,J) = AB(1,J) + SX(N)

AC(1,K) = AC(1,K) + SX(N)

BC(J,K) = BC(J,K) + SX(N)

70 ABC(1,J,K) = SX(N)

DO 80 I = 1+NA

S(3) = S(3) + A(1)**2 / (BN * CN)

A(1) = A(1) / (BN * CN)
         DO 75 J = 1.NB
         S(6) = S(6) + AB(I+J)**2 / CN
    75 AR(I+J) = AB(I+J) / CN
        DO 80 K = 1.NC
    S(7) = S(7) + AC(1+K)**2 / BN

80 AC(1+K) = AC(1+K) / BN

DO 85 J = 1+NB
         S(4) = S(4) + B(J)**2 / (AN * CN)
B(J) = B(J) / (AN * CN)
         DO 85 K = 1.NC
         S(8) = S(8) + BC(J+K)##2 / AN
    85 BC(J+K) = BC(J+K) / AN
         CF = 0.0
         DO 90 K = 1.NC
CF = CF + C(K)
    S(5) = S(5) + C(K)##2 / (AN # BN)
90 C(K) = C(K) / (AN # BN)
         CF = CF + CF \cdot / TN
```

```
C ADJUST SUMS OF SQUARES AND COMPLETE COMPUTATION.
          00951 = 2.9
      95 S(1) = (S(1) - CF) + TN / R(N)
          S(6) = S(6) - S(3) - S(4)

S(7) = S(7) - S(3) - S(5)

S(8) = S(8) - S(4) - S(5)
          S(9) = S(2) - S(3) - S(4) - S(5) - S(6) - S(7) - S(8)
          S(10) = W(N)
 S(1) = S(2) + S(10)
C CONVERT SUMS OF SQUARES TO MEAN SQUARES.
          DO 100 I = 1.10
          IF (D(1) \cdot GT \cdot O \cdot O) \cdot S(1) = S(1) / D(1)
    100 CONTINUE
 C COMPUTE F-RATIOS AND PROBABILITIES.
          00\ 105\ I = 3.9
          F(1) = S(1) / S(10)
    105 P(I) = PRRF(D(I), D(10), F(I))
 C PRINT SOURCE TABLE AND RELEVANT CELL MEANS.
        OPRINT 110. N. (S(1). D(1). 1 = 1.3). F(3). P(3). S(4). D(4). F(4).
   1100FORMAT (///21H ANALYSIS OF VARIABLE, 13 // 7H SOURCE, 16X, 4HM.S., 1 7X, 4HD.F., 4X, 7HF-RATIO, 8X, 1HP // 6H TOTAL, F21.3, F10.0 //
       2 8H BETWEEN, F19.3, F10.0 / 3X, 1HA, F23.3, F10.0, 2F12.4 / 3 3X, 1HB, F23.3, F10.0, 2F12.4)
  IF (NC .GT. 1) PRINT 115. S(5). D(5). F(5). P(5)
115 FORMAT (3X. 1HC. F23.3. F10.0. 2F12.4)
        PRINT 120, 5(6), D(6), F(6), P(6)
   120 FORMAT (3X, 2HAB, F22.3, F10.0, 2F12.4)
  IF (NC .GT. 1) PRINT 125. (S(1). D(1). F(1). P(1). I = 7.9)
1250FORMAT (3X. 2HAC. F22.3. F10.0. 2F12.4 / 3X. 2HBC. F22.3.
1 F10.0. 2F12.4 / 3X. 3HABC. F21.3. F10.0. 2F12.4)
  PRINT 130, S(10), D(10)

130 FORMAT (/ 7H WITHIN, F20.3, F10.0 /// 23H MEANS FOR ALL EFFECTS.)

CALL PRTS (A. NA. 1. 6HA MAIN, ND)

CALL PRTS (B. NB. 1. 6HB MAIN, ND)

IF (NC .GT. 1) CALL PRTS (C. NC. 1. 6HC MAIN, ND)
        CALL PRTS (AB. NA. NB. 6HA BY B. ND)
        IF (NC .EQ. 1) GO TO 150
        CALL PRTS (AC. NA. NC. 6HA BY C. ND)
        CALL PRTS (BC. NB. NC. 6HB BY C. ND)
        PRINT 135
  135 FORMAT (// 31H CELL MEANS. BLOCKS . C LEVELS.)
        DO 145 K = 1 .NC
        DO 140 I = 1+NA
        DO 140 J = 1 .NB
  140 AB(I+J) = ABC(I+J+K)
   145 CALL PRTS (AB, NA, NB, 2HAB, ND)
150 IF (ZM(N) .EQ. 0.0) GO TO 170
C PRINT CELL N MATRIX.
        PRINT, 155
   155 FORMAT (// 38H SUBJECTS PER CELL. BLOCKS = C LEVELS.)
        DO 165 K # 1 .NC
        DO 160 I = 1.NA
        DO 160 J = 1 .NB
   160 AB(I+J) = GN(I+J+K)
   165 CALL PRTS (AB. NA. NB. 2HAB. ND)
   170 CONTINUE
        GO TO 5
        END
```

VITA

William Franklin Woodman

Candidate for the Degree of

Doctor of Philosophy

Thesis: AN EMPIRICAL EXAMINATION OF A CLOSED INFORMATION SYSTEM: A STUDY IN THE SOCIOLOGY OF KNOWLEDGE

Major Field: Sociology

Biographical:

Personal Data: Son of Mrs. and Mrs. J. C. Woodman, Amarillo, Texas, born in Wellington, Texas, on December 29, 1945.

Education: Graduated from Tascosa High School, Amarillo, Texas, in June, 1964; awarded Associate of Arts degree from Amarillo Junior College in June, 1966; received Bachelor of Science in Social Studies and English Education in June, 1968, from West Texas State University, Canyon, Texas; received Master of Arts degree in Sociology from West Texas State University, Canyon, Texas, in August, 1970; completed the requirements for the Doctor of Philosophy degree at Oklahoma State University in May, 1973.

Professional Experience and Awards: Named "Outstanding Student Teacher in the Social Sciences," West Texas State University, in May, 1968; Graduate Assistant in Department of Sociology, West Texas State University, 1969-1970; Graduate Assistant in Department of Sociology, Oklahoma State University, 1970-1972; Sociology instructor, Correspondence School, Oklahoma State University, 1971-1972; NSF Summer Research Fellowship, 1972; Assistant Professor, Department of Sociology, University of Wisconsin (Platteville), starting Fall, 1972.