

Reemergence of Bogdanov's Tektology in Soviet Studies of Organization

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Bogdanov's general theory about organization of systems is outlined, and the traditional Soviet approach to studies in organization is considered. Also reviewed are some restatements and extensions of Bogdanov's Tektology undertaken in recent years by Soviet organization theorists.

Theoretical studies of the subject "organization" are a recent development in the Soviet Union. Formerly, such studies were considered unnecessary. Political ideologists throughout most of the Soviet history have maintained that all that was needed to arrive at the communist millenium was a strict obedience of Soviet subjects to the will of their sovereign—the Communist Party. Armed with knowledge of Marxist-Leninist principles of dialectical materialism, the Party then would swiftly lead its subjects out of the realm of necessity into the realm of plenty.

In recent years, however, the Soviet economic organization has failed to deal effectively with the increasing complexity of economic administration. This plus the technological developments of the last two decades; the emergence of new branches of science such as cybernetics, systems theory, information theory, etc.; and the reentry of mathematical methods into management and economics after a long period of banishment by Stalin have created pressures leading to a resumption of systematic inquiry into the nature and functioning of organizations and have provided the means with which to pursue such inquiry. In 1964 the Soviets made an important step toward theoretical studies in this area by establishing a Section on Theoretical Questions of Organization (STQO) within the Council for Complex Problems of Cybernetics. The results of the research of the STQO are to be published in a series of books entitled *Organizatsiya i Upravleniye (Organization and Management)*. The first book of the series appeared in 1968 (1).

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An important reference work in almost all the Soviet published literature on the subject of organization theory reviewed by this author is Bogdanov's (A.A. Malinovskii's) three volume treatise, *Tektologia: Vseobshchaya Organizatsionnaya Nauka* (*Tektology: The Universal Organizational Science*) (5)—in short, *Tektology*, or “science of construction” from the Greek word “tektologia,” published in Russia during the period from 1912 to 1927. A. Bogdanov (1873-1928), medical researcher, philosopher, and economist, was also one of the ardent Russian revolutionaries and an adversary of Lenin.

The purpose of the present paper, first, is to outline Bogdanov's theory of organization of systems, a theory dealing with organizing and disorganizing processes throughout nature and society; second, to consider briefly the traditional Soviet approach to studies in organization; and, third, to consider some restatements and extensions of Bogdanov's *Tektology* undertaken in recent years by Soviet organization theorists. As fruitful as it might be, a comparison of Soviet and Western research in the field of organization theory is beyond the scope of this study.

Today, Bogdanov's *Tektology* should be of interest for several reasons. First, despite the existence of strong evidence to support the contention that *Tektology* is “historically the first expanded variant of the general systems theory . . .” (16, p. 201), little is known about *Tektology* in the Western world. Even such authoritative and related works on the subject as Ludwig von Bertalanffy's *General Systems Theory* (3) and, in particular, the section of that book dealing with the “History of Systems Theory” make no reference whatsoever to Bogdanov and his *Tektology*. Because of its historical value and its continued relevance to contemporary thought, however, Bogdanov's *Tektology* can no longer be ignored and omitted, through ignorance, from the world literature on the subject of organization theory and systems.

Second, misunderstood and suppressed for political reasons for almost half a century in the East, *Tektology* currently is attracting increasing attention from Soviet theorists of organizations and systems (4, 6, 14, 16).

The lack of initial impact of *Tektology* on the scientific thought of the day is explained by the Soviet scientist, Takhtazhdian:

Foreign in its universality to the scientific thinking of the time, the idea of general theory of organization was fully understood by only a handful of men and did not therefore spread. Partially, this was due to the fact that Bogdanov addressed earlier the questions of philosophy and tektology was therefore perceived by many, philosophers in particular, as a new philosophical system, despite the fact that the author of *Tektology* considered it to be a “universal natural science” and repeatedly protested against confusion of the universal organizational science with philosophy (16, p. 205).

In particular, Marxist philosophers of the day were fearful that *Tektology* was an attempt by Bogdanov to replace the philosophy of Marx, since it appeared to them that:

. . . by the creation of the universal organizational science its author . . . wanted to throw a challenge to Marxism by positing as a counterweight to Marxism the concept which pretended to be universal. This was a serious error, no theory of organization can replace philosophical methodology which has its own subject and specific methods (16, p. 201).

As a result, Lenin mercilessly attacked Bogdanov, the philosopher (11). The casualty of subsequent blind and indiscriminate suppression by Stalin of Bogdanov's works was Bogdanov the scientist—the creator of *Tektology*.

The bold attempt by Bogdanov “to gather together and harmoniously integrate the fragmented organizational experience of mankind” (5, p. 9) has a strong appeal to contemporary Soviet thought, in which deep specialization in various branches of knowledge is pursued. The need for a synthesis stems primarily from the growing Soviet attempts to tackle problems whose solutions lie within different and often far removed fields of specialization. The attempt by Bogdanov to provide just such a synthesis therefore attracts more than passing interest from contemporary Soviet organization and systems theorists.

The need for integration of scientific knowledge also is felt for similar reasons in the Western world today. This need is well stated in the objectives of the Society for General Systems Research adopted by the Society in 1954. The Society's objectives are to:

1. Investigate the isomorphy of concepts, laws, and models in various fields, and to help in useful transfers from one field to another;
2. Encourage the development of adequate theoretical models in the fields which lack them;
3. Minimize the duplication of theoretical effort in different fields;
4. Promote the unity of science through improving communication among specialists (3, p. 15).

The basic thrust of the above objectives generally is the same as the thrust of the objectives posited by Bogdanov for his *Tektology* in 1912. Today, however, because of a growing acceptance of ideas on “unity of science,” realization of these objectives is closer than when Bogdanov, almost alone, faced the hostile and narrowly specialized minds of his time.

BOGDANOV'S TEKTOLOGY

Objectives

The main thesis of Bogdanov's *Tektology* is that there exists in nature and society a certain unity in organizational methods that can be studied scientifically. The scientific study of organizational methods, for Bogdanov, is one of the most urgent and challenging tasks facing mankind because all human activity appears to be concerned primarily with organizing and disorganizing processes.

Bogdanov does not claim that tektology is anything new. On the contrary, it is “a necessary conclusion from the past, a necessary continuation of that which has been done and is being done by men in their practice and theory” (5, p. 5). Man's organizational experience, however, has grown

spontaneously, elementally, and in a fragmented fashion. The main objective of tektology, therefore, is to systematize the fragmented knowledge of organizational methods acquired by man in various fields of human endeavour so that these methods can be studied and developed in a planned fashion. Bogdanov elaborates on this as follows:

Tektology must clarify the modes of organization that are perceived to exist in nature and human activity; then it must generalize and systematize these modes; further it must explain them, that is, propose abstract schemes of their tendencies and laws; finally, based on these schemes, determine the direction of organizational methods and their role in the universal process. This general plan is similar to the plan of any natural science; but the objective of tektology is basically different. Tektology deals with organizational experiences not of this or that specialized field, but of all these fields together. In other words, tektology embraces the subject matter of all the other sciences and of all the human experience giving rise to these sciences, but only from the aspect of method, that is, it is interested only in the modes of organization of this subject matter (5, p. 82).

Basic Concepts and Methods

Basically, Bogdanov's world is the world of dynamic changes. In this world only the differences in energy tensions result in actions and reactions; only these differences have a practical meaning. Therefore, activities (actions, forces), resistances (reactions) to these activities, and their various combinations are the primary elements of tektology.

The notions of activity and resistance are not independent but are mutually related concepts. The strength of a resistance, for example, cannot be determined without reference to the opposing activities. Such a determination can be made only in terms of the "quantity of energy" that must be expended by the opposing activities to overcome the resistance in question. The strength of this resistance basically is a function of the content and elemental structure of both forces—the resistance and the related activity.

The combinations of actions and reactions result in three basic types of complexes (systems): organized, disorganized, and neutral. These differ from one another by the practical sum of their elements: actions and reactions.

An organized complex, or a system, is defined as a complex where the whole is greater than the sum of its parts. This does not happen "because new activities are created by a combination of existing activities but because the activities on hand are combined more successfully than the resistances opposing these actions" (5, p. 71). Disorganized complexes are complexes where the whole, in practice, is smaller than the sum of its parts. Neutral complexes are complexes characterized by the equality of organizing and disorganizing activities.

The notions of organized, disorganized, and neutral complexes are relative. "A complex is organized not in general, not universally, but only in relation to some other definite actions, reactions, energies; at the same time it can be disorganized in relation to some activities and neutral with respect to others" (5, p. 80).

In *Tektology* Bogdanov uses inductive-deductive methodology and argues by analogy. For the further growth of organizational science, however, Bogdanov envisages the development of abstract symbolism similar to that of mathematics, and the use of the experimental methods of the natural sciences. The necessity for tektological symbolism arises from the need to discover and study similarities in organizational methods in seemingly diverse situations. The pragmatism of tektology requires extensive experimentation and hence the application of experimental methods.

Bogdanov holds that in order to comprehend the creative and destructive forces in nature and society it is necessary to understand the mechanisms of creation, regulation, and destruction of systems. For him the “mechanical side of life” is simply all that has been explained. “‘Mechanism’ . . . is nothing more than understood and explained organization” (5, p. 51). In line with this view, in his *Tektology* Bogdanov considers two basic organizational mechanisms:

1. Formulating mechanism; and
2. Regulating mechanism.

Formulating Mechanism

In all his activities man basically joins and separates some elements on hand. The act of joining always precedes the act of separation. “Therefore, the primary moment begetting changes, appearance, destruction and development of organizational forms, or the base of formulating tektological mechanism is the joining of complexes” (5, p. 100). Bogdanov denotes this by the term “conjunction.”

The ubiquity of conjunction can be observed everywhere. “It is cooperation and any other social contact, for example, speech and connection of concepts into ideas, and the meeting of images and aspirations in the field of consciousness, and the fusion of metals, and electrical discharge between two bodies, and an exchange of goods between enterprises . . .” (5, p. 100).

The results of conjunction can be tektologically different. At one extreme, activities of one complex may be combined with the activities of another complex in complete cooperation without any loss of energy. At the other extreme, the activities of one complex may be totally opposed to the activities of another complex. In normal situations, complexes fall in between these two extremes and are combined in such a way that their activities are partially joining and partially opposing one another. The result of a combination of specific activities or resistances accompanying conjunction, Bogdanov calls their “analytical sum.” Only in ideal situations, the first extreme mentioned above, will this sum be equal to the arithmetical sum. Normally, since some of the organizational activities are wasted internally, the analytical sum will be less than the arithmetical sum.

The joining of elements and complexes can come about only through the existence or creation of common links. The totality of common elements

of complexes forming a part of a chain connection, Bogdanov denotes by the term “linkage.”

The creation of common links and linkages in complexes is accomplished by means of “ingression,” that is, insertion of facilitating devices between any two complexes which are being joined together. Ingression is a general form of a chain connection; it is inherent in all organizational processes. For the basic form of disorganization, Bogdanov uses the term “disingression,” whose meaning is opposite to that of ingression. Bogdanov describes the operation of ingressive and disingressive mechanisms in the following way:

Ingression, activities which were not previously connected are joined together in such a way as to create a linkage of connecting complexes. In disingression, these activities mutually paralyze one another leading to the appearance of a “boundary”, that is, separateness. Until these activities are completely paralyzed, the boundary does not exist: the complexes are in a state of partial disingression. Disingression is always admixed with some ingression since . . . there cannot be any conjunction of complexes without some expenditure of effort in the form of mutual resistances (5, p. 121).

A breach in tektological boundaries between any two complexes generally is the start of conjunction, that is, creation of new systems, further transformations, appearance of new links, partial or full disingression. Bogdanov calls this breach an “organizational crisis” of a given complex, and distinguishes between two types of crises:

1. “Crisis C” or conjunctive crises arising out of a breach in existing tektological boundaries and leading to the creation of new systems, transformations, appearance of new links, partial or full disingression; and
2. “Crisis D” or disjunctive crisis which leads to the creation of new tektological boundaries.

Since any separation is preceded by conjunctive processes, Crisis C is primary and Crisis D is secondary in Bogdanov’s organizational scheme.

Generally, an organizational crisis manifests itself in a breach of the existing systemic equilibrium and at the same time constitutes a process of organizational transition to a new equilibrium. By studying tendencies of organizational crises, Bogdanov thinks it is possible to predict the final outcome of a given crisis, that is, the limiting equilibrium toward which a complex tends. In sum, therefore, “conjunction, ingression, linkage, disingression, boundary, crises C and D . . . these are the basic concepts for formulating tektological mechanism” (5, p. 147). Bogdanov uses these concepts in his numerous illustrations of the creation of various organizational forms, complexes, and systems.

Regulating Mechanism

Next, Bogdanov considers questions concerning “the fate of forms which have appeared—their preservation, consolidation, diffusion or their decline

and destruction" (5, p. 147), that is, the question of the regulating tektological mechanism.

At the base of the regulating mechanism lies the notion of selection—natural and artificial. By means of the selection mechanism a complex, perceived by Bogdanov as an open system, disassimilates and assimilates the requisite variety from the environment and thus, in effect, is regulated by it. In cases where there is a relative equality between the two processes, there is a preservation of an organizational complex in the form of a dynamic equilibrium. For a continued preservation of a complex, however, a simple dynamic equilibrium is not sufficient. "Only growth in activities, preponderance of assimilation, that is, growth of activities of a complex at the expense of its environment insures the preservation of that complex" (5, p. 160). Similarly, the dynamic element of destruction "can be represented as a diminution in the activities of a complex, their absorption by the environment" (5, p. 161).

Preponderance of assimilation over disassimilation is defined by Bogdanov as "positive progressive selection." The contrary situation, that is, preponderance of disassimilation over assimilation, is defined as "negative progressive selection."

Acts of selection consist of various processes of conjunction and disingression. Both processes occur in parallel. For example, positive progressive selection by some complex leads to the growth of its energies by assimilation of variety from the environment. The act of assimilation is a conjunctive act, but assimilated activities must be torn away from those complexes of the environment to which they belonged; tearing off presupposes disingression. It follows, therefore, that "the regulating mechanism of selection is not something separate from formulating tektological mechanisms, but only their definite combination" (5, p. 166).

There are definite limits to progressive selection. According to Bogdanov:

The strength of an organization lies in precise coordination of its parts, in strict correspondence of various mutually connected functions. This coordination is maintained through constant growth in tektological variety, but not without bounds: . . . there comes a moment when the parts of the whole become too differentiated in their organization and their resistance to the surrounding environment weakens. This leads sooner or later to disorganization (5, p. 248).

Systemic disorganization culminates in either of the two states: the complex in question either disintegrates completely or it changes in such a way that its preservation is assured. The latter is achieved by means of a process which Bogdanov calls "anti-differentiation of parts." At the base of this process again lie the mechanisms of selection. Positive selection by making a system more complex and increasing its variety produces for it more material from the environment. Negative selection by simplifying this material; removing from it all that is volatile, discordant, and antagonistic; and introducing into its connections homogeneity and coordination brings order and systematization to this material and with it organizational survival.

Thus both positive and negative selections play crucial roles in the preservation and development of organizational complexes.

Additional Remarks

Bogdanov's organization represents a certain unity of the elements of a system which is initiated by a "formulating mechanism" at the base of which lie the forces of conjunction. This unity is maintained and developed by means of a "regulating mechanism" at the base of which lies choice of the appropriate forces keeping the system in a state of dynamic equilibrium. This concept of organization, according to Bogdanov, is applicable to all systems wherever they appear in nature or society. In line with his concept of universality of the organizing factor, Bogdanov (7) also argues, among other things, that:

1. Ideology is nothing more than an instrument for organizing social consciousness and "truth" is an organized form of individual and social experience.
2. Existence of social classes is due not to the distribution of ownership rights in society but arises because of the possession of organizational experience by individuals in a given society. Thus, the ruling class in a social system is composed of organizers of production and not the owners of the means of production. The elimination of class distinction in society, therefore, cannot be achieved through violent revolutions and abolition of private ownership rights, but rather through education of members of society in organizational skills.

Although Bogdanov considered himself to be a Marxist, as previously noted, his un-Marxian views were attacked vehemently by Lenin and declared revisionist by Stalin. Consequently, Bogdanov's works were suppressed and, had he not died in 1928, he probably would have perished alongside many other scientists, economists, and politicians opposing Stalin during the purges which followed the Soviet industrialization drive of 1929.

TRADITIONAL SOVIET APPROACH TO STUDIES IN ORGANIZATION

Having rejected Bogdanov's proposal for studies in organization, the traditional Soviet approach to such problems has been either one of a narrowly specialized and applied nature or in the nature of apologetics and rationalization of a few basic principles of management laid down by Lenin and his associates in the early 1920s (12).

Generally, Lenin held a mechanistic concept of organization. In his view, the structure of state and economic organizations with which he was primarily concerned should be patterned upon the structure of a "huge machine . . . functioning with clock-like precision" (11, Vol. 36, p. 7). To ensure that these organizations did indeed function like a clock, Lenin laid down five general principles of management involving the following (8):

1. Primacy of political approach to the solution of all the economic problems. This is considered to be a necessary condition for the preservation of the supremacy of the proletariat as represented by the Communist Party;
2. Planned development of the national economy;
3. Democratic centralism, involving the planning and direction of the entire economic life of the country from a single center with some participation by local organs;
4. Existence of a uniform accounting and information system providing requisite data inputs into economic planning and control models; and, finally,
5. Injection of a motive power into the system in the form of material incentives, comradely discipline and, if necessary, even some compulsion.

In order to perfect his economic "machine," Lenin strongly advocated the adoption of Taylor's "scientific management" methods, which then were sweeping North America and Western Europe. As a result, extensive studies and experimentation in this area, known in the Soviet Union under the name of "scientific organization of labour" (*nauchnaya organizatsiya truda*, or NOT), were initiated in the early 1920s (13).

After Lenin's death, however, the study of fundamental organization and management problems decreased considerably and ceased almost completely toward the end of the 1930s (2). The main reason for this appears to lie in the Soviet acceptance of enormous economic and organizational inefficiencies as a price for rapid economic development. Possible benefits that could arise from theoretical studies of organization were considered to be remote and thus of little value in the solution of the practical problems of the day. What has been important throughout Soviet history is the industrialization of the country as fast as possible and at any cost. Principles of management which were suggested by Lenin were considered to be adequate for the job in hand.

Implementation of the Leninist principles of management has resulted over the years in the creation of a highly centralized economic apparatus in the Soviet Union. The actual functioning of this organization which owns virtually all the nonhuman means of production in the country has not been as smooth as was originally envisaged by its creator, Lenin. The dilemma in the Soviet economic administration always has been how to maintain centralized control on a national scale for political guidance and economic planning without at the same time stifling decentralized decision making needed for growth. In an attempt to resolve this, there have been numerous organizational changes within a highly centralized Soviet administrative structure. One of the most recent of these changes is identified as the Soviet economic reforms of 1965 (10). The pressures for the latest reforms of the economic organization inherited from Stalin came from a number of quarters, including, among others, the slowdown in economic growth and

the inability of the command system to cope with increasingly complex administration of the giant Soviet enterprise embracing virtually the whole economy. The reforms also have brought about some intellectual liberalization in the Soviet Union and, with it, renewed interest in theoretical aspects of organization.

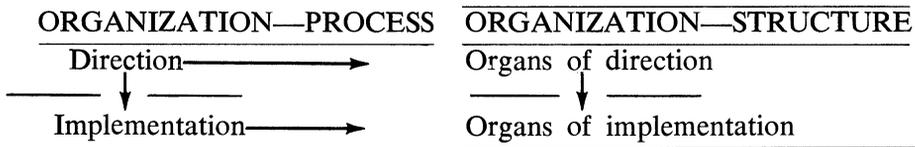
SOME RESTATEMENTS OF BOGDANOV'S TEKTOLOGY

Although the Soviets still disagree with the philosophical and political views of Bogdanov, his work on *Tektology* is now fully resurrected. As already noted, it is exerting increasing influence over the current systemic thinking of a number of Soviet organizational theorists. Blaumberg, Sadovskii, and Yudin (4) state quite clearly that Bogdanov's *Tektology* lies at the base of current Soviet systemic research. Others, although less open in this respect, unmistakably reveal their intellectual debt to Bogdanov in the striking similarities of their ideas with those of *Tektology*.

Bogolepov, for example, defines organization in very much the same way as Bogdanov defined it some 55 years before him:

. . . an organization can be defined as an interrelationship and interconnection of elements of some complex (structural part of organization), their action and interaction (functional part), which are bound together by a unity of purpose or a unity of performed functions and by definite circumstances of time and place (6, p. 45).

Applying this concept to social systems, Bogolepov diagrams the interrelationship of the structural and functional parts of an organization in the following way (6, p. 48):



Setrov defines organization, in a similar way, as a “sum total of the phenomena in which the properties of the latter reveal themselves as functions for the preservation and development of the aggregate” (15, p. 30). Basically, concepts of orderly structure and dynamic interaction of structural elements of a system in the dimensions of time and space underlie all these definitions of organization.

The objectives of organizational studies as stated by the STQO involve the following (6):

1. The study of basic elements and regularities appearing in organizations, both as process and as structure, everywhere—in nature, machines, and society, but with a special emphasis on human organizations;
2. The study of factors determining and characterizing activities and structures of all types of organizational systems.

3. The development of a special mathematical apparatus in order to facilitate further organizational studies.

The basic reason for the broad approach to studies of organization stems from the view held by Bogdanov and now shared by many contemporary Soviet organization theorists that specific organization theories cannot be developed prior to the solution of a more general problem involving "the construction of a general organization theory based upon knowledge of universal organization laws of systems" (15, p. 28).

The development of a general science of organization need not start from scratch. *Tektology*; findings in established social sciences and in such emerging fields as cybernetics, systems theory, information theory, bionics and praxiology; and some of the tools developed in these areas can be utilized in organizational studies. These disciplines aided by the language of mathematics are expected to form the foundation for the science of organization. Echoing Bogdanov, Bogolepov states that although this science "should not and cannot pretend to conquer all the other sciences; nevertheless it must as far as possible bring together the conquests of other sciences as far as they concern organization into a single, harmonious system" (6, p. 55).

For the science of organization to develop, however, basic principles underlying its structure must first be established. Setrov proposes four such principles (15):

1. The principle of compatibility reflecting the structured relationship of elements of a system in terms of its purpose or goal. This principle is necessary to distinguish between organizing and disintegrating systems.
2. The principle of actualization reflecting the ability of an organization to survive in the changing environment through a purpose-oriented interaction of elements within a system.
3. The principle of concentration of functions which reflects the need for coordination of all the functional activity within an organization in order to ensure its preservation and development; and
4. The principle of labialization reflecting the ability of an organization to replace a large number of its existing functions with new ones in the process of raising its organizational development to a higher level.

On closer examination these principles are nothing more than a restatement and refinement of Bogdanov's notions of common links, linkages, selection, and anti-differentiation of parts discussed earlier.

The influence of *Tektology* on Soviet organizational studies appears to stem primarily from the compelling force of Bogdanov's insights into the nature of organizational processes (9). Bogdanov's findings rest on a broad base of natural and social sciences. These findings can be replicated and extended; they cannot, however, be seriously challenged.

CONCLUSIONS

Rejection of Bogdanov's seminal work in the field of organization theory appears to have retarded Soviet progress in this field for at least half a century. This and the apparent lack of proper interest in Western contributions to organization theory until quite recent times have forced Soviet theorists to be unduly preoccupied with elaborations of principles of organization as laid down by Lenin.

Now the Soviets appear to have accepted Bogdanov's challenge "to gather together and harmoniously integrate the fragmented organizational experience of mankind" (5, p. 9). Whether they will be able to find the key to creation or not is not yet clear. So far, Soviet attempts at a general organization theory are in the nature of restatements and minor variations on Bogdanov's bold theme—his "Universal Organizational Science." What is clear is that they have embarked on this project and committed considerable resources to its realization. It thus is reasonable to expect that the concerted attention Soviet scientists, economists, and philosophers give to questions of organization should result eventually in a substantial contribution to knowledge in this important area.

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Management Data Bases Inventory (continued from page 223)

5. *International Communication Association Communication Audit Data Bank* (Originators: Gerald Goldhaber, Gary Richetto, Harry Dennis)
 Located at: SUNY-Buffalo.
 Description: Data are descriptive of communication behavior and perceptions of personnel from a variety of organizations in the U.S. and Canada. The "Communication Audit," a five-instrument measurement procedure, was used to collect the data.
 Contact: Gerald M. Goldhaber, Associate Chairperson, Department of Speech Communication, SUNY-Buffalo, Buffalo, New York 14226
6. *National Data Program for the Social Sciences* (Originator: National Opinion Research Center, University of Chicago)
 Located at: Williams College.
 Description: National sample of persons 18 years of age or older living in noninstitutionalized arrangements in the U.S., about half of whom are employed. Survey covers areas of interest to social scientists such as stratification, the family, race relations, social control, civil liberties, and morale.
 Contact: Mr. Philip Hastings, Director, The Roper Center, Williams College, Williamstown, Massachusetts 01267
7. *Job Satisfaction, Group Cohesiveness, Leadership Styles, Group Size of Blue-Collar and White-Collar Black and White Workers (JCLS)* (Originator: Jugoslav S. Milutinovich)
 Located at: Temple University.
 Description: The JCLS data base contains the responses of 1,062 workers from three organizations (735 blue-collar and 327 white-collar). Measures: Job Descriptive Index (JDI), Seashore's measure of group cohesiveness, and Likert's "Profile of Organizational Characteristics." Sociodemographic variables: job level, education, sex, income, tenure, age, community prosperity, race, group size.
 Contact: Dr. Jugoslav S. Milutinovich, Department of Management, School of Business Administration, Temple University, Philadelphia, Pennsylvania 19122
8. *Social Indicators Utilized in Corporate External Relations* (Originator: Jann W. Carpenter)
 Located at: Willamette University.
 Description: This base reflects SI used by managers in the U.S. and Canada in arriving at decisions relevant to corporate external relations. Base contains the responses of top managers in 600 of the larger firms classified by SIC numbers. Example: Company "x", SIC, Decision, SI used, Remarks on how used, source of SI, Willingness to support research into use.
 Contact: Dr. J. W. Carpenter, Social Indicators Program Research, Graduate School of Administration, Willamette University, Salem, Oregon 97303
9. *Corporate Proxy Statements* (Originator: James H. Carbone, III)
 Located at: Granada Hills, California.
 Description: Corporate proxy statements filed annually with the Securities & Exchange Commission by approximately 183, NYSE, FORTUNE 500 corporations for an effective period 1950 through 1974. Approximately 45,000 sheets of paper, hard copy only, preponderately legal size. Data Bank companies comprise a stratified random sample.
 Contact: James H. Carbone, III, 16444 Germain Street, Granada Hills, California 91344