TECHNOLOGY AND ALIENATION IN INDUSTRIALIZED NATIONS

JAMES E. BLACKWELL*

1. *Introduction*

Distinguished Professors and guests of the University, it is a great pleasure for me to have this opportunity to speak to you this morning, and I am deeply moved at your invitation to visit you and to share a few ideas on the subject of "Technology and Alienation in Idustrialized Nations."

As you know, there are several varying views concerning the impact of technology not only on social change but on the social-psychological condition of human beings. As Richard Halley and Harold Vatter asserted, "almost all technological futurists invoke a model of societal change according to which technological advance proceeds in a quasi-autonomous manner and drags cultural change more or less reluctantly and with a distant lag along with it". Daniel Bell, in *The Coming of Post-Industrial Society* argues that there must be institutional or "adaptations of social arrangements to the innovations that largely reshape the occupational structure of the labor force and the national product mix; revise the system of property rights; subordinate the private corporation to social control; place higher education in a new, strategic power position; . . . and in general elicit a heightened necessity for more societal guidance (planning) than was required in the past."

I take the position that Lewis Mumford was correct in the warning he gave us in his important work of more than four decades ago, *The Condition of Man,* that there is an

* Professor of Sociology. University of Massachusetts/Boston. Lecture given at the Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, July 31, 1978.

"inner crisis" of our civilization: "the retention of materialistic creed" that confused the needs of survival with the "need for fulfillment" of the entire human personality. Retention of that need harnessed to the use of machines for profit, clashes with the pressing need to revamp our ideas and values and recognize the human personality around its highest and most central needs."

For me, it is the failure to heed Mumford's admonition with the rapid advance of an unhalting technology that has produced such widespread alienation in industrialized societies such as the United States of America.

What do I mean by alienation? My interpretation draws heavily upon the pioneer interpretations of such writers as Marx, Melvin Seeman, Leo Srole, Robert Blauner, Melvin Kohn and many others. We know that alienation is a most appealing concept but it is also a confusing concept in terms of the meanings attributed to it. It has a psychological interpretation as manifested in such terms as "estrangement" - estrangement from self and others. It has sociological and social-psychological roots in terms of interpretations of Max Weber's concept of "disenchantment" - referring to "the progressive extirpation of magic from social life and its replacement with rationality that removes human beings from nature and creating self-conflict in the process. It has a social structural meaning which I will describe in subsequent aspects of this discussion. However, the term is also expressed in such terms as powerlessness, self-estrangement and cultural estrangement.

1. *A Sense of Powerlessless* - meaning the expectancy of probability held by the individual that his own behavior cannot determine the occurrence of outcomes he seeks. (To feel powerless is to lack personal efficacy).

2. *Self-Estrangement:* According to Melvin Seeman, this "refers essentially to the inability of the individual to find self-rewarding activities that engage him." "It implies a sense of being detached from self, of a being adrift, purposeless, bored with everything, merely responding to what life has to offer, rather than setting one's Own course."

3. *Cultural Estrangement* - assigning low reward value to goals or beliefs that are typically highly valued in a given society." In Seeman's conceptualization, it is "the individual's rejection of such allegedly dominant cultural themes as success and materialism" but it is also estrangement from primary groups (the family and friends) and from secondary groups (people with your religious background).

It is my intention to demostrate the impact of technological innovations on human life and, then to indicate how its consequences have led to manifestations of alienation among people who live in an age of abundance – the people of the United States of America. Finally, I will briefly describe some of the efforts taken to alleviate this problem and to restore a sense of peace with self among our citizens.

There is nothing illusory about the fact that more and more man is living in a world of technology. That technology, which has many forms and diverse modes of expression, is shaping and moulding the nature of human environment. It is becoming an essential intervening variable in the natural relationship between man and nature – a relationship that evolves with time and experience as adaptations are made to the natural and cultural environments.

The fundamental social nature of man is recognized. Aristotle proclaimed it centuries ago when he asserted that "man is by nature a social animal". It is that social nature of man that has encouraged him to reach out, be creative, imaginative, expand his universe, and to develop institutionalized structures for meeting fundamentally important social and human needs. The universality of human needs is evident from society to society. It is only the expression of those needs, the modes of meeting them, the technology of responding to them that fosters diversity across cultures and social systems.

In this context, James E. Fernandez's observation that there are several domains of culture illuminates a fact about which there is universal agreement. In fact, these domains refer to both the needs of man, such as for food, shelter, ways of making a livelihood, governance structures, protection systems, family life organization and recreational pur-

suits and communications. They also include the means evolved over time for meeting these domains of culture that decisions are made concerning what a culture wishes to communicate. The domains are so all-inclusive as to embrace scientific knowledge, technological advancement and techonological innovations.

Social change is inevitable in every social structure but the scales of change may vary. That being the case, it is easy to understand why the isolation which characterized societies a mere fifty years ago is rapidly vanishing. Consequently, few societies and their cultures can or will ever remain immune from the impact of social change. In such situations, shifts do occur in the domains of cultural experience. Cosmologic principals do not necessarily remain immutable. As contact and acculturation occur, there is always the possibility for pluralism and individualism to arise within societies. Often these situations arise so rapidly or so episodically that they require innumerable transformations, adaptations, and techniques for problem-solving.

Changing societies are steadily confronted with new frontiers of knowledge. In this situation, they often experience what Fernandez calls a "decentering effect". That is to say, there is such an "increase in scale or in the time and space relevant for accruing knowledge that a new consciousness about the social world develops. However, that consciousness may forge a sense of powerlessness and peripherality or even lack of knowledge about the transcendant world. Changing societies are compelled to confront the onslaught of new knowledge and of social change itself on their traditional ways of life, institutions, aesthetic characteristics, highly cherished values, and on those normative standards that have provided for generations past the traditional rules of personal conduct and of social interaction.

As a consequence of culture contact and increases in knowledge, expectations rise and demands for change accelerate. Whatever the intrinsic motives may be for so doing, some societies seem so eager to accelerate the pace of change through such means as technological transfer and foreign assistance that Daniel Boorstin's claim that it is possible for underdeveloped nations to be transformed in "mere decades" is particulary vindicated.

At the risk of enticement to technological determinism, it should be clear that social change is induced by technology while technological developments also occur in response to social change. Consequently, any dynamic society must make adjustments, adaptations, and modifications, however grudgingly, to change if they wish to keep pace with other changing societies. Without these adjustments, there is always the high probability that there will be a cultural lag not only between cultures but within the same culture. For as William F. Ogbura noted in *Social Change* a half century ago, lags do occur when changes in one aspect of a culture (e.g., when material dimensions such as inventions and discoveries) out-distance changes in another aspect of the culture, the non-material dimension (e.g., values and traditions and social institutions).

However, adjustments do not always necessitate total change in all aspects of the culture. It is possible and appropiate for societies to retain cherished values and other crucial elements in the social structure as defined important by that particular system. However, one has to be prepared for the inescapable truth that there is a price for social change, scientific advancement and for technological innovations borne of science. Hence, now and in the twenty-first century, every social system must confront the crucial question: To what degree is it willing to pay the price for scientific achievements, technological advancement, economic growth and development and for generalized social changes which impact on the cultural environment.

2. *Uses and consequences of technological innovations*

2.1. *Uses*. Technology and science helped to shift the focus of economic activity in ways that economic activity is no longer primarily lodged in a single sector. There are now many different, and sometimes interdependent, sectors of economic activity in industrialized societies. Agricultural, industrial and manufacturing activities exist alongside each other. Indeed, mechanization of agriculture elevated it into a large-scale business among many of the leading nations of the world. As inferred earlier, animals were replaced by highly sophisticated machines tractors, complex agricultural tools and instruments for sowing, ploughing and harvesting. Improvements in crop production are innumerable. The dairy

industry was revolutionized by automated machines to milk cows and to process dairy products. This, too, is a major industry in the twentieth century. Significant improvements have been made not only in food production, but in the agronomy, soil enrichment through the development of chemical fertilizers, and in the general technology of food.

In many parts of the world, technological change and innovations moved us from the electrical age to the space age. The scope of space age technology can be gleaned by the observation that in two short decades, seventeen nations are now active participants in programs which have resulted in placing more than 4,000 objects into space. These objects, particulary the satellites, serve a wide array of functions from performance as weather stations revolutionizing meteorology; facilitating world-wide communications which link all of us by radio, telephone, and television; facilitating research on minerals and crop production; assisting in navigation and surveillance thereby contributing to the prevention of war; and probing other planets (including the Moon, Mars and Venus). Through space research, man has not only orbited the Moon but walked on it.

As a result of technological innovations and technological change, man has conquered many crippling diseases, such as polio.

Better health systems have developed. This has included the training of a large force of physicians, osteopathic medical workers, dentists, surgeons, pathologists, anesthesiologists and other specialists and allied health workers. Drug technology has led to the discovery of new drugs and new medicines which have helped to effect cures of debilitating diseases. Machines now help to bring comfort to the infirmed and to prolong life in artificial ways. Improved diets and better health, combined with improvements in the natural environment, have added years to life expectancy in the "developed" nations and to those "developing nations" which are adopting some of these techniques.

The radio, television and telephone are major instruments of communication. These systems have helped to bring people into closer contact and to decrease the sense of isolation between people in different towns, cities, provinces, states, nations, and continents. The potential of the transistor radio

and television, as well as the radio, for literacy and other educational programs is immense. Telecomunications centers are the source of pleasure and entertainment for millions of people each day. Simultaneously, television has transformed social relations and moved many people from their front yards, from which they had face-to-face interaction with their neighbors, to words between comercials. Telephone technology enables people to communicate across oceans and continents and to transact governmental and pontical affairs affecting the fives of all members of the human race.

The shelter of man has been transformed in industrialized nations as a result of experimentation and inventions of new types of materials used for the construction of places of work. Refinements in the production of wood commodities, of bricks, tin, steel, aluminium, and iron, as well as in such instances as plaster, stucco and paint – all have led to the construction of buildings of greater durability, safety, and aesthetic appeal. They can be heated in winter and cooled by air conditioning during the summer periods.

Solar energy is now being harnessed for the heating of dwellings and to conserve energy produced by dwindling supplies of oil and natural gas. Because of limitations on the supply of oil and other sources of energy, attention is now being diverted toward the production of new forms of energy or for the production of underutilized sources such as coal, wood and the sun.

Modern household conveniences have proliferated in the past half-century. Many kitchens are equipped with all electrical amenities. Witness the electrical oven, coffee pots, dishwashers, can openers, waffle irons, blenders, knives, choppers, frying pans, and micro-wave ovens. In addition, many households have electrically powered clothes washers and dryers. Some have electrically operated machines for the polishing of shoes. In addition, there are electric lamps, electric toothbrushes, electric shavers for men and women, electric heating systems and electric decorations of all sorts.

Schools, colleges and universities make use of all types of electric tools and electric instruments. So do hospitals and other institutions. Hence, there are electric typewriters, sophisticated computer systems, equipment for operating rooms, x-ray machines and many, many others.

By virtue of technology, the petrochemical industry arose. Starting with its raw materials of petroleum and natural gas it has produced a vast array of commodities for everyday use: cloth, synthetics; cables; detergents; chemicals used to increase health and for the production of good; plastic bottles and plastic building materials; pesticides, and many others. The list seems endless. The uses are extensive.

As a result of technological change, great libraries and museums have been constructed. Centers for theatrical productions, folk music, operas, jazz, athletic stadiums, and a wildde variety of cultural events have been constructed. In some cities, the open air stadium is being either replaced of supplemented by massive enclosed facilities within which conditions are adjusted to the season of the year. All of these components of culture affect the totality of the cultural environment.

There are of course countless inventions and discoveries which have resulted from scientific advancement, technological innovations, and technological change. Some inventions are social as well as mechanical. For certainly the automobile gave rise to social inventions such as traffic laws and the advent of health and accident insurance. Similary, airplane travel led to the use of weapons – detection devices at airports and the implementation of heavy penalties for those who violate regulations regarding what is permissable to carry on board a plane. Research on petrochemical products has caused the danger signals to be raised as to the relationship between some of them and such diseases as cancer as well as sterility in men. Nevertheless, the uses of technology attest to the inmunerable advantages of technology and to the fact that technological innovations do enrich our cultural environment.

2.1.1. *Transportation technology*

The introduction of innovations into social systems is also related to the type of transportation that is utilized in that system. High levels of industrialization are inevitably accompanied by population dispersions and concentration, as previously stated. This process not only includes urbanization, and later suburbanization. It demands a technology of transportation capable of shifting increasingly large numbers of work-

ers to and from the worplace in the most efficient manner possible. In the 19th century, when the rich were no longer the only ones privileged to ride to work and industrialization expanded, demands for transportation increased.

Varieties of transportation forms emerged. Omnibusses and horsedrwn streetcars were replaced by electric streetcars to insure greater speed in moving greater numbers of people to and from industrial centers. Simple railroad systems ultimately gave way to the rapid transit and computerized high speed inter-city and inter-urban systems. Express Amtrak systems in the U.S.A., and subway systems were eventually constructed to move hundreds of thousands of people to and from work each day. Subways, elevated trains and streetcars led to crosstown networks which expedited travel time and increased the availability of transportation services to workers and for inter-cultural contact.

The development of motor transportation created new spatial relationships between man and his workplace. Geographic areas now within the boundaries of efficient location to work were greatly expanded. Convenience and accessibility to work became a precondition to employment in many types of jobs. The impact of the automobile on the quality of life in cities as work place became undeniable. It brought unparalleled congestion and enabled more and more people to be concentrated into compact ecological areas. It was an important element in the creation of a socio-ecological system.

Motorized transportation, in general, fostered shifts of industries and manufacturing enterprises into and, now, away from many cities. Thus, the spatial character of urban areas was transformed. Factories and manufacturing firms required increasing quantities of space and new architectural forms. Mills and factories often needed accessibility to water and waterways in much the same manner as emissions of motorized transportation accentuated air pollution in congested metropolitan areas. Without suitable mechanisms for disposal of industrial waste materials, not only have industrialized nations experienced the pollution of the air, but the pollution of riverbeds, rivers, lakes, and other streams has reached alarming proportions in several cities.

Pedestrian bridges have been constructed over central arteries, thoroughfares and busy intersections to avoid heavy

traffic, problems of congestion, and to safeguard the public. Bicycle paths are constructed to parallel main streetways to accommodate people who do not wish to use motorized transportation for work. Motorcycles serve similar functions and are often substituted for automobiles. They, too, required parking spaces which all too frequently clutter the environment, add to urban congestion.

It is the automobile, however, that is so critical in many of the highly industrialized nations. Mass production of autos led to gigantic capital outlays for the development of highways, superways and expressway systems.

The issue of financial outlay for the construction of extensive highway networkers can be illuminated by the experiences of the U.S.A. Since 1917, for example, more than 88 billion dollars have been allocated by the Federal Government for higway construction. (And, there are more than 200,000 miles of inter-state highways in the U.S.A.) However the inmense number of highway miles, expressways and special purpose roads still do not seem capable of managing traffic problems created by the more than 140 million automobiles, not including trucks and busses, registered to the 225 million people of the U.S.A. Indeed, some transportation systems seem to be practically outmodes before their construction is completed. In many ways the problems of air transportation are quite similar to land transportation when we consider the number of planes that land or take-off each minute at the busier airports.

The fact that space limitations lead to concentration of facilities and control access to them may be illustrated by situations with many urban-located universities. Where space is limited, there is freqeuntly a tendency to utilize that space for purely academic purposes rather than for residential facilities for students. Frequently, students either commute by public or private motorized transportation or by bicycles. While this situation may enable the University of Barcelona to enroll 120,000 students or the University of Mexico to enroll 350,000 students, it also adds to congestion by demands on transportation. Such huge enrollments may also strain academic resources and limit access of students to professors and tutors and restrict interaction between them.

Such experiences gleaned from European countries or nations in The Americas should serve as a warning sign to the "developing nations" as to some of the consequences emanating from the introduction and uncontrolled use of motorized transportation. They should be a strong indication of what the failure to stablish and maintain effective management systems can mean for the nation's citizens.

The congestion arising from the movement of masses of people into urban communities is a principal factor in the occurrence of several varieties of social problems. There is substantial evidence to lead to the conclusion that congestion is not infrequently accompanied by various types of crime, interpersonal violence, and growing concern for public safety. People become inordinately and sometimes justifiably suspicious. Movement is restricted to certain hours of the day. Protective association arise and police forces develop or expand as worker citizens demand the implementation of security measures which protect them as persons as well as the invaluable equipment with which they work each day. Hence, the cultural or human environment is dramatically affected by the necessary intrusion of visible "protectors" within the socio-technic system.

But in the U.S., despite such problems, achievements. which affect the quality of human life have been phenomenal.

Amenities

1. 90 percent of American homes have a telephone.
2. 50 percent of Americans own at least one automobile. The total number of automobiles owned by Americans in 1978 is 148 million.
3. 96 percent of all American homes have at least one television set.

Other Accomplishments

After American farmers finish feeding the American population, they export:

60 per cent of their wheat and rice.
50 per cent of their soybeans.
25 per cent of their grain sorghum.
20 per cent of their corn.
50 per cent of the world's supply of wheat.

Yet, the total number of farms and farmers decreased by two-thirds since 1940; signifying the impact of technology, technological innovations and scientific knowledge on agriculutral development in the U.S.

2.2. *Consequences*

One of the manifest consequences of technological advancement is a proliferation of automation and mechanization in highly industrialized societies. Automation is the replacemen of man by machines. It is replacement of human control by automatically controlled machines. This is frequently accomplished by computerization and may include almost any aspect of work from computerized operated trains to vending machines. Automation has also been responsible for a great deal of displacement. Whereas mechanization helped to remove the drudgery from some forms of work, as in agricultural production for example, it does require a reasonably large number of persons to function as operators.

In the case of automation, however, the demand for operating personnel decreases as the machine assumes almost all of the functions previously performed by individuals. Without a doubt, there is a need for maintenance personnel but there is no direct one-for-one exchange between operators and maintenance personnel when automation occurs. In fact, the requirements for maintenance personnel for automated equipment machines are generally higher than for machine operators in general. Maintenance operators must be highly skilled and possess a considerable quantity of formal training that is of high quality. They become identified by their specialized knowledge and expertise and often perceived as highly prized individuals within a firm, an industry, or an institution.

The value of maintenance experts can be seen in what happens when the computers break down or something goes wrong in the automated system. Without maintenance experts available to correct the difficulties, extensive losses can be experienced in economic production and valuable time can be lost in terms of meeting rationally planned production objectives. In computerized banks, the process is similar when computer lines are broken down and transactions must then be recorded by hand. The line of customers becomes

longer; people become impatient and may decide to take their business elsewhere.

Hence, it is imperative that with the adoption of automation, a sufficient number of maintenance experts is provided. The training of additional experts should also be a matter of high priority.

One of the consequences of automation, however, is *technological unemployment*. This was inferred when it was observed that there is no one-for-one replacement of machine operators by maintenance personnel. Automation displaces and renders unnecessary the employment of large numbers of people in automated sectors of the economy, in industry, in agriculture, in manufacturing and other aspects of production. As people are forced out of work by virtue of automation, to find suitable employment necessitates re-trainig. This process is not drastically different from that experience which many of the same workers encountered with mechanization – in industry, manufacturing and, to some degree in agriculture. Such changes are the outgrowth of variations and major changes in production which characteristically require variations and changes in technology. Like the ripple effect observed by dropping a pebble in a pond, such variations spread out to affect the labor force and its functions when technological changes occur.

The fact remains that, with industrialization, development, mechanization, technological advancement and automation, *work roles change and new standards or role expectations occur*. These conditions occur under situations of dynamic and rapid social changes within a culture. As societies move from a traditionally agrarian one to a more advanced one in industrial development, certain shifts are required– a shift from the exclusive domain of agriculutral pursuits, to an industry focus, to manufacturing, for instance. Only a simple technology is required for production in agrarian societies but a much more complex division of labor and substantially greater sophistication in technology are mandated by industrialization and manufacturing. As the division of labor increases in complexity, so do roles become more specialized, segmented and multiple. Individuals become one of many cogs in the production process. And

many individuals become highly alienated and dehumanized. One has to keep in mind, however, that, whereas in agrarian and pre-industrial societies, work forces were small, intimate and provided for interpersonal compatibility, the situation shifts, with industrialization, to large-scale proportions of people in the work force; impersonality; and formal means of social control.

2.2.1. Impact on Social Institutions

Much has been learned from the experiences of the industrialized Western nations concerning the impact of industrialization and technological change on social institutions. What follows is not intended to be an exhaustive treatment of this subject. Rather, it is illustrative of some of the key areas in which that impact has been felt. One thing is certain; under the impact of social change, institutions do become more specialized and the relationship between the various elements within institutional arrangements become more complex.

The family is regarded as the basic social institution. It is in the family, along with the economic substructure, that changes induced by industrialization and innovations in technology are among the first to be observed. For example, the value placed on the number of children and on their roles in society undergo profound changes as one moves from traditional societies to industrial and postindustrial societies. In the former, children are viewed as an asset, especially in terms of strengthening the family as a basic economic unit. It is generally believed that large numbers of children increase the family's capacity for a high level of agricultural productivity.

In traditional societies, the family is also likely to be extended. Several members of the family, including children, parents, grandparents and others are ordinarily housed in the same dwelling. All contribute to the wellbeing of the family as a social unit. Interdependency for survival needs and for personal and emotional health is also characteristic and enables significantly larger numbers of people to become wealthy.

2.2.2.   Impact on Work

From early childhood to adult life, the ethic of hard work becomes an essential element in the socialization of people in highly industrialized nations. This value is especially important in those nations in which Calvinistic conceptions of work are ingrained. In such places, work is often regarded as an end in itself. It is also a manifestation of the wholeness of the person and of that person's ability to fulfill societal expectations of adulthood responsability– being a good provider, paying one's own way, being independent and autonomous, successful and achieving a sense of self-respect and ego-enhancement. In this sense, work is, indeed, so exalted that it is regarded as "'the core of life".

According to tradition, then, every able-bodied person, specially men, is expected to engage in some type of occupational pursuit and to be particularly efficient about it. Historically, idleness is to be conscientiously avoived, if at all possible, lest the unemployed persons be stereotypically perceived as indolent, lazy or as social parasites. Often demoralization of the person is associated with the acceptance of public welfare. Unwillingness and inability to work vitiate possibilities for success– that necessary and culturally desired outcome of work.

Some individuals become highly ethnocentric about the value of work and are almost inescapably bound by the prejudices and view of both their culture and their social class. invidious distinctions between groups and individuals arise from the various types of work performed, by whom and for whom, within the sociotechnic system.

As technology is introduced and advanced in any culture, attitudinal shifts regarding the work process result. If, for example, work has been group-oriented in which role assignments and reward allocations were not individualistic, the introduction of technology into work forms necessitate significant changes. The pace of work is transformed; the work rhythm is often altered. Whereas the "working parties" described by Melville J. Herskovits may have been traditional and highly valued, they are, in some, replaced, quite deliberately and systematically, by processes considered

more amenable to efficiency in production. The festive nature of work disappears. Reciprocity in work relationships is all but discarded. Work relationships become quite impersonal and job-specific. Demands for larger work forces, combined with the constraints of economic life in general, may mean more women as active participants in the labor force. Well-established divisions of labor between the sexes are transformed by the functional requirements of technology. Work-role exchanges often occur. Segmented occupational categories proliferate in response to mass production demands.

With industrialization and expansion of technology, transformations occur in the structure and organization of work. Traditional agriculture is not necessarily central in the economic life of a people. If it remains, it is likely to be shifted from subsistence-level production to agri-business characterized by mechanized, large-scale production, and systematic commercialization. Or, its primacy may be supplanted by expansions in other sectors such as in manufacturing and textiles, the making of machinery, equipment, the production of chemicals, refining of oil, and the production of rubber and highly consumable goods. All of these require factories, plants, office buildings, a gigantic work force now numbering into the thousands or hundreds of thousands, and more effective ways of moving people to and from the workplace.

Managers and organizers become distinct from the rank and file worker whose schedule and time-tables are organized by managers and their representatives. Role specificity becomes a matter of crucial concern in the selection and placement of workers for specialized tasks.

Presumably, attitudes toward work, expectations of work and motivations for work are all transformed as a consequence of technological change. Workers' attitudes may very well be determined by the content of their labor as well as by the "creative opportunities offered by work", and by economic and social rewards which accrue from one's work. Attitudes may be further shaped by that work ethic internalized during socialization processes. Expectations may be high or low, depending upon the degree of adherance or

strangement to the work ethic, and the influence of such variables as age, education, lenght of time in the work environment and occupational status.

According to studies by Rosow and Clark, in some countries, due to the content of socialization regarding work, some individuals have conditioned themselves to a principle of self-sacrifice. They have developed a high level of tolerance for ambiguity and some of the demeaning aspects of work such as routinization, tediousness and long hours. Hence, their expectations are low. Others adjust themselves to trade-offs between economic benefits derived from work (e.g., higher wages, retirement plans, medical benefits and life insurance) and psychological needs for work that is meaningful to them. However, they may not fully comprehend the social context of their work.

The social context of the workplace may have a negative impact on one's satisfaction with work. The workplace may or may not be of "central life interest" for industrial workers whose working environment is not of value or is devoid of meaning. On the other hand, these conditions may improve when the workplace fosters higher degrees of positive, social interaction and social cohesion. However, some researchers argue with force that industrial work, by its very nature, must be impersonal and that "the rules and practices of the small workshop cannot serve in the factory". Consequently, in time, work will help to define and crystallize social status which arises from differentiated role allocations, role performance, and role rewards. But, the positions vacated by upwardly mobile workers must be replaced by others. Often these are drawn from the previously excluded and often exploited– such as racial and ethnic minorities, or from immigrant workers or from exported labor. These situations are found today in all fluid and dynamic industrial systems which permit relatively rapid upward mobility for some of its members and relatively slow pace for others. It is also found in those societies who import immigrant labor or encourage the inclusion of immigrant labor in the work force to fill positions vacated by indigenous members of the social structure when they are elevated to high status because of the specialized expertise they have attained.

2.2.3. *Values*

Not infrequently, as societies become highly industrializ-ed and as they experience technological innovations, a strug-gle develops between old, established values and new values which are intruding. The values of a society are an essencial element in the overall cultural environment. They serve an integrative function and facilitate social cohesion or the maintenance of the social bond. Consensus around these values has been the mainstay of the socila order and of the normative order of the social system. Consensus around cultural values has the potential of justifying existing insti-tutional arrangements and for resisting changes demand-ed through the encroachment of external innovations of impending technological transfers. However, the role of values for the maintenance of the social order or in produc-ing a unifying effect around some central issue depends, heavily upon congruence as to the legitimacy of the more important symbols, rituals and beliefs which comprise the value system. The lack of consensus opens the door for the introduction and penetration of competing or alien value systems.

The highly cherished values of a social system, whether sacred or secular, must be commonly shared, continually transmitted and reinforced among members of that social system if they are to survive the penetration of the other value systems. These usually accompany the diversification of economic activity, technological change, immigration and migration, educational advancement, urbanization, and cul-ture contact. Ideologies changes; religious beliefs are often more carefully scrutinized and sometimes shaken; and pre-viously held notions concerning the distribution of wealth and power, for example, are called into serious question when value transformations are emergent. Even so, values resist change. Many survive and remain the central core of social organization. Others must inevitably experience alteration as societies shift from personal, agrarian/agriculutral to in-dustrialized or industrializing systems. In fact, traditional structures and relationships may very well be abandoned as the system moves more and more toward industrialization.

According to the "convergence hypothesis", it is believed that with increasing industrialization, "the pattern of social structure will increasingly resemble, the pattern of advanced industrial societies". In this view, the convergence of patterns will occur regardless of those characteristics believed to be unique which were prevalent throughout that society during its pre-industrial period. Convergence theory asserts the primacy of industrialism in molding social structure and the power of industrialization to diffuse those sets of values which accompany its processes. It emanates from scientific knowledge and its application which produces technology and technological change. These, in turn demand acknowledge, skills and intellect of a short not found in agrarian societies and preindustrial communities.

Essentially, then, not only will values change but there will be a movement toward new orders dictated in a large measure by the requirements of the industrial age. This poses innumerable problems for societies who seek to hold on to many traditions while embracing the technology of industrialism. These problems await resolution.

Simply because there is a convergence of patterns in the social structure does not in and of itself mean that all aspects of the social structure and all components of the cultural environment must duplicate, without modifications, those patterns, values and traditions or ways of life found in the industrialized societies. The people who enact a culture have the capacity not only for change but to be selective in choosing what innovations they wish to adopt in their social system. Man has the capacity to control and manipulate technological change for the highest benefits to human beings.

It should be evident from analyses of situations in the technologically advanced parts of the world that man has learned to master his environment in many ways. Man has learned to use technological achievements to his benefit, whether in the electrical, electronics, atomic, nuclear or space age. But, as has been described, man has also made his own problems such as urban congestion, pollution, depletion of energy supplies, the spread of contagious diseases, the increases in the stresses and aberrant conditions affecting the human body, and population explosions. However,

solutions to many of these problems have been found through the application of scientific knowledge or in technology. Other solutions are being sought through research by trained and competent experts in the problem areas. But the crucial question remains: How transferable are solutions to what appears to be common problems to less industrially developed parts of the world. Parallel to his question is the issue of the degree to which the solutions found in the more advanced industrial nations will be either recived or resisted by the decision-makers in the less industrial nations.

3. *Manifestations of alienation*

What then are the manifestations of alienation in industrialized societies. It is evidenced in Weber's term "disenchantment" which refers to "the progressive extirpation of magic from social life" and its replacement with rationality that removes human beings from nature and creating self-conflict in the process? This may mean, for instance, that religion as an institution is routinized and bureaucratized to the point at which the mysteries no longer play a significant role in its functions. As Greisman points out, the old dieties are replaced by intellectualism and rationalization and we find ourselves at the alter of the new and secularized dieties that can be even more demanding taskmasters than the jealous Gods of the Hebrews.

One manifestation of this is what Schneider and Dorbusch have called "spiritual technology" in which there has been a wedding of super-heated evangelism to the nuts-and-bolts, how-to-do-it marching orders of industrialized society. Hence, people are told that religious practice is an exact science which means that the esctatic and personalistic features of religious experience are replaced by Norman Vincent Peale's exhortation that "we must learn to pray correctily, scientifically, employ tested and proven methods. Avoid slipshod praying". This confuses many individuals who cannot adjust to scientific religion and impersonal religious practices, and many become alientated from that institution.

However, the term "ALIENATION" also has a social-structural manifestation which derives from the writings of Marx, conflict theoreticians, and from structure-functionalist theo-

reticians in North American social science.

Marx stated:

"What constitutes the alienation of labor? First, that the work is external to the worker, that it is not part of his nature, and that, consequently, he does not fulfill himself in his work but denies himself; has a feeling of misery rather than well-being; does not develop freely his physical and mental energies but is physically exhausted and mentally debased... His work is not voluntary but imposed, FORCED LABOR. It is not the satisfaction of a need but only a means for satisfaying other needs. Finally, the external character of work for the worker is shown by the fact that it is not his own work but his work for someone else, that in work he does not belong to himself but to another person". *(Early writings*, 1964: 124-25, edited by T. M. Bottomore).

Work that is external is probably the polar opposite of what Melvin Kohn calls "self-directed work" – that is, work that involves initiative, thought and independent judgment. It is maintained that many occupational conditions are either conducive to or deterrent from the exercise of occupational self-direction-as in such conditions as "closeness of supervision, routinization, and substantive complexity. In fact, Marx and his followers claim that the central fact in occupational life today is where man stands in relation to ownership of the means of production. When workers do not own the means of production they lose control over their occupational lives. Non-marxists deny the centrality of the ownership of means of production, status, income or interpersonal relationships. Instead, they maintain that "the central fact in occupational life is the opportunity to use initiative, thought, and independent judgement in one's work– to direct one's own occupational activity. It is in that sense that work conditions have a determinative effect on feelings of alienation.

3.1. *Evidence of Alienation in the United States*

(1) *In the Workplace*

 a) lack of control over the work process as manifested in
   1. closeness of supervision
   2. routinización.
   3. substantive complexity.

    b)   sense of powerlessness, self-estrangement and norm-lessness
         1.   lack of control over the decision-making processes and
         2.   estrangement from the owners of production and the power weilders within bureaucracies.

(2)   *High incidence of social and personal problems*

    a)   Staggering rate of alcoholism among Americans 10 million Americans are confirmed alcoholics and another 5 million are at least in the incipient or prodromal stage of alcoholism.

    b)   Escalating rate of suicides among American teenagers. A recent study by the U.S. Department of Health, Education and Welfare reported that suicides are the third leading cause of death among American adolescents. It is also reported that for every successful suicide there are at least 100 attempted or unsuccessful suicides among adolescents. These young people are depressed in a world of plenty and abundance. This problem not only reflects the intensity of alienation but mis-management of technological innovations.

(3)   *Explosive Rates of Unemployment and Income Inequities Among the Young and the Minorities*

This is not only a result in the social structure itself such as in the economic sub-structure but is indicative of still unresolved problems of racism, prejudice and discrimination. For instance, the unemployment rate of black Americans is usually and consistently twice as high as that of white Americans are unemployed. Further, we know that about 37 to 15 per cent of the adult population among black Americans. That figure does not consider these persons who have simply given up on the possibilities of obtaining meaningful employment. These are the discouraged workers. And when they are considered in relation to the total unemployed population, it is estimated that about 25 per cent of black Americans are unemployed. Further, we know that about 37 per cent of all black youths are unemployed. However, in

some cities in the United States, that proportion may reach as much as two-thirds of all black teenagers. Is there any wonder why so many are alienated even in a technological and industrialized society. It might be pointed out that this problem of unemployment and alienation among the youth has gripped any number of industrialized and quasi-industrialized nations, resulting in such manifestations of riots and uprisings in the streets as well as on the campuses of many colleges and universities.

In the United States, despite economic growth and development of unparalleled proportions, and despite the promulgation of laws against occupational and income distribution, we know that the median family income of Spanish-Speaking Americans is about 61 per cent of that of white Americans as a whole and that of the black population is only about 58% of that of the white population. These problems exacerbate the sense of hopelessness and strangement from the social system and frequently manifest themselves in urban confrontations and the discontent of long-hot summers.

(4)   *In Colleges and Universities*

Despite major advancements in higher education, I contend that alienation is widespread in many American Colleges and Universities. That alienation stems from Melvin Kohn discusses as loss of control over the work process, particularly in terms of substantive complexity. The gulf between administrators and professors, and between professors and students has widened to the degree that questions are raised which related to control over decision-making, operating procedures, responsibility areas, infringement on academic freedom and prerogatives, working conditions, who is eligible to enter and under what conditions should they be graduated, hired, promoted, retained, tenured or fired. All or these have produced increasing strain, discontent, dissatisfaction and increasing unionization among the faculty.

4.   *Humanization and De-Humanization in a Technological World: Changing the Cultural Environment*

It is also evidenced in the transportation crisis. The lure of thousands, hundreds of thousands and millions of people

to the large cities gave rise to overcrowded conditions in general. But people must find a way to get to work since many live long distances from places to work. Hence, crowded trams, subways, commuter trains, busses, and unimaginable traffic jams, even on the exxpressways and super-highways leading into and around cities, often coalesce to so frustrate workers that they are in poor moods when they arrive at the work place. Once on the job, they are confronted with a technological structure that further exacerbates frustrating conditions. Further voluminous studies about the working environment in highly industrialized countries have reported on various indices and evidence of alienation associated with work.

4.1. *Alienation of Workers*

These studies on alienation show that workers are bored by the monotony and tedium associated with repetitive requirements of the assembly line, for example. They are dissatisfied by the lack of diversity in job assignments and the poor quality of life in the work environment. Many workers claim that mass production exacts few demands on their intellectual abilities and requires a pace of work which taxes their sanity, stultifies their minds, humiliates them as persons, resulting in relentless depression on the job.

From the Volkswagen plants of West Germany, to the Volvo flow lines of Sweden, to the assembly lines of General Motors and Ford in Britain and the Uniter States, reports of "blue-collar-blues" proliferate. This condition of depression and dehumanization among workers is manifested in apathy toward work, unrest on the job, high rates of absenteeism, persistent turnovers of workers, sabotage of machines, violence on the shop floor and lingering depression.

The organization and structure of assembly line work prevent meaningful social interaction among workers and limit discussion to the person in front or behind the worker, except for occasional encounters at the water cooler or during lunch breaks. Moreover, segmentalization of work denies appreciation of the place of one's specific functions in the work environment as a whole. Work has no meaning, no value and little enjoyment. Job satisfaction is derived from

such extrinsic factors associated with work as the weekly or monthly paycheck rather than from intrinsic factors including a sense of pride with achievements and personal accomplishments on the job. This observation is cautioned by the fact that some researchers assert that job satisfaction varies from industry to industry and may be highly correlated with specific conditions of the working environment.

It is also recognized that a substantially larger proportion of workers report job satisfaction in contrast to the proportions who report job dissatisfaction. However, one fact should be stressed, as Rosow maintains, "reporting job dissatisfaction and being dissatisfied may be very different things". It is equally clear that most workers, especially the younger and better educated ones, in the highly industrialized nations desire "meaningful work". That is to say, workers want work to which they can become commited, in which thay can have a sense of pride, work that is challenging to their intellect and to work under conditions perceived as especially humanizing. This fact seems just as salient for the dozens or hundreds of secretaries who may work in secretarial pools in a skyscraper office building as it does for assembly line workers in a large factory.

4.2. *Humanizing the Workplace*

During the past decade, a number of industrial companies and manufacturing enterprises have attempted to adjust technological innovations, work organizations and design in ways that would reduce alienation and more effectively humanize conditions. Worker participation programs have been organized in various ways, and with different results, in several firms in West Germany, Great Britain, Sweden, Japan and the United States, for example. Some have agreed to place workers' representatives on corporation boards. In fact, in 1976, the Swedish Parliament approved farreaching legislation giving employees the right of representation on company boards.

Other companies responded to the problem of alienation by implementing programs designed to enrich the cultural environment. In general, these programs are oriented toward job enrichment as a means of creating a sense of involvement of the worker in the overall production process

thereby attenuating job dissatisfaction. Still, others seem to enrich the environment by addressing their actual, physical and socio-culutral conditions under which people work in sociotechnic systems.

A few examples of such programs, drawn from Sweden and the United States may be instructive at this point.

4.3. *Sweden*

During the late 1960s and the early 1970s, the Saab plant in Scania experienced several symptoms of alienation described above. Observing the impact of alienation on production, management embarked on job enrichment and worker participation programs, the Saab Company, in conjunction with the Workers Council, initiated a job design experiment in new plants then under construction. A committee was established with representatives of management and the worker population to discuss all aspects of machine and tool design before approval for construction.

Workers assumed responsibility for quality control of products as well as for the care and maintenance of their machines. Work teams were established to assemble machines – a procedure that replaced traditional assembly line production. This arrangement permitted workers to leave their stations on assembly lines when desired or warranted and facilitated greater interaction among them. Workers began to report higher degrees of job satisfaction primarily because of involvement in the decision making processes of their work and an emergent sense of pride in the finished product. Management also realized that, as a result of job enlargements, many workers were capable of assembling entire machines. Now, Saab advertises that its cars are made by "interested, caring workers".

The Volvo company turned to job redesign for essentially the same reasons articulated by the Saab company. Alienation was high and production was down. Sucess with its experiments in worker participation at Gothenberg led Volvo to establish an engine factory at Skowde and a car assembly plant at Kalmar. Volvo embarked upon a long-term policy commitment to programs for improving working conditions and increasing job satisfaction. At the Kalmar plant, traditional assembly lines were replaced by work teams consisting

of fifteen to twenty-five individuals. Teams were empowered to make decisions relative to work distribution and to assume responsibility for specific sections of the car such as for the steering mechanism or for the electrical system. Being responsible engendered pride in the teams's finished product. Workers were able to control the movement of car bodies along self-propelled carriages. They could also control the rate of work.

The architectural design of the paint, with its multi-sides walls, small workshops and outside windows, accentuated the team work environment by reducing the impersonality of the large-scale assembly rooms. Relaxation areas, rest rooms, and saunas provide workers an atmosphere that is much more tolerable. Hence human relations are improved.

Regarding outcomes from these adjustments, studies indicate that Volvo has also encouraged leadership and development training for its workers. Its experiment with changing work tasks on production lines is already a successful innovation.

4.4. The United States

The General Foods Corporation initiated its plan for a new pet foods plant in Topeka, Kansas in 1968. One initial goal in the planning stage was to introduce innovative measures that would prevent alienation at work. A project team was organized with responsibilities for plant design. Nine key features comprised the basic design; namely: 1) autonomous work groups; 2) integrated support systems, 3) job mobility and rewards for learning; 4) challenging work assignments; 5) facilitative leadership; 6) managerial decision information for operators; 7) congruent physical and social context; 8) self-government for the plant community, and 9) learning and evolution. Underlying these nine aspects were notions of collective responsibility for the production process, the maintenance of equipment, quality control and for the product itself. Sofar, the results of these innovations have been favorable. Manufacturing costs are down; absenteeism is low, and safety records are among the best for the entire Corporation.

In Chicago, Illinois, the division of Golconda Corporation, a manufacturing company, and Flick-Reedy Corporation at-

tacked the dehumanization problem by environmental enrichment programs. Golconda also established flexible time schedules for some of its workers. "Flex-time" permits the workers to decide when to arrive at work and when to leave so long as they put in the approved amount of time. It is based upon the principle that it is not when the workers arrive at work that is important; rather, it is their state of mind when they arrive that is conducive to a higher level of productivity and personal accomplishments. The Company also initiated advising services on insurance policies, retirement plans, credit unions ans legal services regarding such matters as the drafting of wills and state planning.

Both companies initiated special cultural events, music and film festivals, celebrations at such major American holidays as Thanksgiving and Christmas. They granted permission for family members to lunch in company cafeterias, and to use the swimming pool, auditorium, theatre and other recreational facilities for dances and community functions. Sports teams for employees were established and day camp facilities were arranged.

The pioneer companies are no longer unique in such activities. Several major corporations have moved more and more into worker participation strategies in the decision-making apparatuses. Many have established job enrichment programs. Several have attacked the problem of enriching the working environment through provisions for theatrical events, musical programs and sports activities. As a consequence, the workplaces have become somewhat more humanized in the process.

What then are the implications for these situations for developing nations that have not yet reached the advanced stages of high level mechanization, assembly-line production or automation? What does it mean to nations whose major concern at this point is to eradicate ubiquitous unemployment by creating sufficient numbers of workplaces? These are real problems of great magnitude. However, it does not take long for alienation and a sense of dehumanization to set in any work situation. It may be well for developing nations, interested in maximizing production and getting the most of workers on a job, to make critical examinations of those working conditions that are possibly conductive to alienation and dehumanization in industrializing settings.

Research should be undertaken to determine the degree to which workers in nations of high unemployment are willing to trade off dissatisfaction with intrinsic conditions for gains in extrinsic conditions such as economic benefits. Since work teams were at once characteristic of indigenous groups in many developing nations, a determination can be made to ascertain whether or not this concept is appropriate for the work requirements of the new industrializing and modern technology sectors of the system. It may be that the work party traditions of the less industrialized nations may have a high degree of transferability in an age of technological change.