Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 188

18

INDUSTRIAL SOCIOLOGY

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Trying to define and then describe industrial sociology is a challenge because there is no general agreement among sociologists about the definition of industrial sociology or even the content of the subdiscipline (Miller 1984). This disagreement has produced alternative labels for the subdiscipline from "sociology of work" to "work and occupations" to "organizational sociology." Furthermore, there is no sense of identity among social scientists conducting industrial sociology investigations. While important industrial sociological research is being conducted, it is spread among many different disciplines, including sociology, economics, and business. Here, industrial sociology will be defined as the study of work and work organizations, careers and adjustments by workers, and the relations of workers and work organizations to the community and society (Miller 1984; Stover, Lichty, and Stover 1999).

THE HISTORY

Investigations of topics that would eventually be labeled industrial sociology began in the early part of the twentieth century. In-depth studies of occupations such as prostitutes, teachers, salespeople, physicians, waitresses, and ministers were conducted in the 1920s at the University of Chicago (Taylor 1968). However, the subdiscipline of industrial sociology is generally considered to have begun with the famous Western Electric research program conducted at the Hawthorne Works in Chicago (Whyte 1968). These studies, conducted during much of the Great Depression, were designed to understand the factors involved in worker productivity (Simpson 1989). When the studies ended, the researchers claimed to have determined that the social environment—the work group of the worker and the way workers were treated by management—had a powerful effect on worker performance (Roethlisberger and Dickson 1939). Although disagreement now exists about whether their results actually support their claims (Carey 1967; Franke and Kaul 1978; Jones 1992), there is little doubt that their conclusions captured the imagination of social scientists interested in worker productivity and culminated in substantial research projects dealing with work, workers, and the workplace.

That research activity eventually became known as industrial sociology and represented, for a time, one of the most vibrant sociology subdisciplines (Miller 1984). (For examples of the research being conducted during this time, see Chinoy 1955; Walker 1950; Walker and Guest 1952; Walker, Guest, and Turner 1956.) Guest provides an example of the importance of this research when he describes the results of one of his projects. In 1948, he and his team launched a two-phase project on a community whose U.S. Steel plant was to be shut down. The first phase was to be a study of the plant and the community before the shutdown and the second was to be a study of the community after the shutdown. After the first phase was completed, the results were published in the book *Steeltown.* A year later, he contacted the head of public relations for U.S. Steel and asked why the mill had not yet closed. The director was surprised that Guest had not heard what had happened. Apparently, the head of engineering for U.S. Steel had read the report, realized the importance of the skill in the mill's workforce, and convinced top

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 189

management to upgrade the mill to keep it in operation. The director concluded by saying, "You won't have a ghost town to study, but I'm sure that if you went back for a visit the Chamber of Commerce would parade you down Main Street as heroes. Everyone knows the story" (Guest 1987:8).

THE SPLINTERING

During the 1960s, industrial sociology began to splinter. As sociologists recognized the potential value of the information available from a study of the workplace, they carved out specialty areas of study. Some began to study industrial organizations instead of the workers within those organizations; others focused on nonindustrial organizations (e.g., government, education, and welfare organizations); still others focused on the characteristics of the labor force (e.g., the unequal distribution of wages among various occupations). At the same time, others chose to leave sociology and to affiliate with business schools. Miller (1984) argues that industrial sociology research began to spread outside of sociology when business schools abandoned their "trade school" image in the late 1950s and created new sociology-based courses with labels such as Business and Society, Personnel and Organizational Behavior, Management and Labor Relations, and Dynamics of the Labor Force. Through the appointment of sociologists to academic positions in business schools, sociological expertise was transferred to other disciplines (Miller 1984). This splintering is at least partially responsible for the current status of industrial sociology as a very important but underappreciated subdiscipline within sociology.

MILESTONE INVESTIGATIONS

Social scientists have investigated and described numerous exceptionally important industrial sociology topics. Among the more important are those pertaining to changes in society due to industrialization and to changes in the design and operation of industrial organizations.

Societal Changes

Convergence versus Divergence

Perhaps the most important of the topics that industrial sociologists have investigated pertain to the consequences of the industrial process. What happens to a society as it industrializes? Two opposing theories have been described. The *divergence theory of industrialization* suggests that although the industrialization process changes the production system of a society, the culture of a society is so strong and durable that the industrialization process has minimal, if any, effect on it. In contrast, the *convergence theory of industrialization* argues that the industrialization process is so strong it substantially transforms any society that is industrializing. Substantial research supports the convergence theory (Form 1976; Form and Rae 1988; Inkeles 1960; Inkeles and Rossi 1961). For a time, it appeared that Japanese workers might be exceptional and provide support for the divergence theory. However, formal investigations support the conclusion that Japan is not an exceptional case (Cole 1971; Marsh 1984; Marsh and Mannari 1976; Naoi and Schooler 1985).

Deindustrialization of America and the Development of a Service Economy

The concept *deindustrialization* means the loss of industrial capacity and, implicitly, the loss of goods-producing jobs. The phrase *deindustrialization of America* refers to both the loss of industrial capacity and to the economic and social consequences of that loss for the United States. The development of the service economy is the counterpart to that trend. Service-producing jobs have arisen to take the place of goods-producing jobs.

The change started in the 1960s when the United States lost the virtual monopoly it had maintained on many markets since World War II; in fact, the United States was forced out of several markets (Bluestone and Harrison 1982; Harrison and Bluestone 1988). Corporations responded in several ways. As Harrison and Bluestone (1988) state, "They abandoned core businesses, invested offshore, shifted capital into overtly speculative ventures, subcontracted work to low-wage contractors here and abroad, demanded wage concessions from their employees, and substituted part-time and other forms of contingent labor for full-time workers" (p. xxvii). Bluestone and Harrison (1982) suggest that somewhere between 32 and 38 million jobs were lost during the 1970s alone as the direct result of private disinvestment in American businesses (p. 9).

The consequences of this deindustrialization are substantial. First, the ability of a country to continue to develop economically depends on having a strong and growing manufacturing base. Many industries (e.g., trucking and railroads) are highly dependent on goods production because they move parts to the assembly plants and then move the finished products to the distributors.

Second, the nature and character of the jobs available to workers change. The United States has developed a service economy. The combination of the loss of a substantial number of goods-producing jobs with the creation of a huge service sector has produced a substantial shift in the nature of the jobs available in the U.S. economy. Good jobs with good pay, good fringe benefits, job security, and guaranteed civil rights are being destroyed or moved overseas and are being replaced by bad jobs with poor pay, few fringe benefits, no job security, and little protection of civil rights.

In 1970, the proportion of workers in the goods-producing sector of the economy was about 44 percent; by

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 190

2003, it had dropped to about 27 percent. While the number of jobs in the goods-producing sector increased slightly from about 35 million in 1970 to 37 million in 2003, the number of service-producing jobs increased from about 44 million to slightly more than 100 million (*Statistical Abstract of the United States* 1997*,* table 649; 2004–2005*,* table 601).

The change in the characteristics of the available jobs is also clearly evident. Thurow (1987) demonstrates that in the 1963 through 1973 time frame, almost half of newly created jobs were well-paying jobs, whereas only about 20 percent were poor-paying jobs. Yet only six years later, the proportions had reversed; over 40 percent were poor-paying jobs, whereas only 10 percent were well-paying jobs (Thurow 1987). Average hourly and average weekly earnings peaked in the early 1970s; both have declined substantially since then (U.S. Bureau of Labor Statistics 2005a, table B-16; *Economic Report of the President* 1994:320).

The Decline of U.S. Private Sector Unionization

The 1930s and early 1940s were periods of solid growth for organized labor in the United States. The three decades following World War II were years of relative stability for unions. However, since the mid-1970s, private sector unionization has experienced a precipitous decline (Clawson and Clawson 1999). Whereas at its peak in the 1950s, almost one in three eligible workers were union members, today the number is slightly more than 12 percent and still declining (U.S. Bureau of Labor Statistics 2005b). Nationwide, total membership is down from the historic high of about 21 million in 1979 to about 16 million today (Chang and Sorrentino 1991:48; U.S. Bureau of Labor Statistics 2005b, table 1).

Two contradictory trends complicate the discussion of the decline of membership in the American labor union movement. One trend applies to private sector union membership and the second pertains to public sector union membership (essentially, governmental employment). While the unionization rate for private workers has dropped from almost 40 percent in 1960 to about 8 percent in 2005, the unionization rate for public employees shows the exact opposite trend; it has risen from about 10 percent in 1960 to close to 36 percent in 2005 (Stover, Lichty, and Stover 1999:238; U.S. Bureau of Labor Statistics 2005b:1).

The reasons given for the decline include the abandonment by management of the tacit agreement it had with unions to maintain the standard of living of current union members in exchange for the abandonment of (or at the least a diminution of) aggressive union-organizing activities, the actual attempts by management to hamper union activities among the workers in an organization, the shift by many companies of their operations to nonunion geographic areas such as the South and West, the failure of unions to successfully organize work in nonunion areas such as the South and West, the failure of unions to successfully organize traditionally nonunion work such as women-dominated occupations and service work (Kimeldorf and Stephan-Norris 1992), the choice of increasing numbers of workers to eschew unions (Farber and Krueger 1993), and changes in the legal climate making it more difficult to be protected from retaliation for union activities (Freeman and Medoff 1984; Geoghegan 1991; Weiler 1993). Structural changes in the economy—(a) the development of a service economy, (b) the shift within the manufacturing part of the economy from "traditional" to "high-tech," and (c) the increasing importance of the export component part of the economy—have also been noted as reasons for the decline in private sector unionization (Troy 1990).

Trends in Unionization Outside the United States

But what about unions in other industrialized countries? The discussion is complicated because countries vary in their approach to organized labor. For some countries, generalizations are difficult because little is known about their policy toward organized labor. For example, the status of unions in the former Eastern Bloc nations—the former United Soviet Socialist Republics (USSR) and its East European allies—is hard to describe because those unions have been free of political control for such a short period of time that it is unclear how they will be treated. For other countries, commenting on the status of unions is a useless endeavor because organized labor has little or no legal standing. Unions in some developing countries (such as the Philippines) are either outlawed or have had their activities severely curtailed by the laws of the country (McGinnis 1979). Unionization in Japan deserves special consideration because of its variety. Many unions are company unions and are controlled to a great extent by company management (Berggren 1992; Ginsbourger 1981). Others are either industrywide unions or members of nationwide coalitions that are sometimes able to achieve worker demands (Kerbo 2006). Finally, German unions must be distinguished from unions in other industrialized countries because of their special relationship to management. Germany's labor-management relationship is qualitatively different from that of other industrial countries because of its *Mitbestimmung* labor-management system—a legally mandated formal arrangement between workers and management requiring cooperation between workers and management. (For details, see the section below titled "Germany's *Mitbestimmung* Labor Policy" and also Kerbo 2006:538–543.)

Accepting these caveats, several overall trends in unionization rates among various countries since World War II can be described (Chang and Sorrentino 1991; Kassalow 1984; Stover, Lichty, and Stover 1999:255). First, the proportion of the labor force unionized in most of these countries has remained remarkably stable over the last two to three decades. There have been fluctuations—some minor declines and some minor increases—but overall there is a great deal of stability. Second, France and the

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 191

Netherlands, like the United States, have experienced substantial declines in unionization rates since World War II. Third, two countries—Sweden and Denmark—have experienced substantial increases. In both the countries, virtually the entire labor force is unionized.

Four differences have been noted concerning differences in the approach taken by Western European nations to organized labor and that taken by the United States (Kassalow 1984; Thurow 1992). First, there seems to be a much greater acceptance of unionization as a societal institution in European countries. While unions in the United States are the subject of considerable ambivalence, if not outright hostility, unionization in Europe is accepted as a matter of course. Second, while the United States is experiencing growth in industries that were previously heavily unionized, much of that growth is not covered by union contracts. That type of growth of nonunion employment in an industry covered by union contracts typically would not occur in Europe; the workers in a new mill or new mine would be covered automatically under the terms of a previously existing, industrywide contract.

Third, management responses to the adverse economic conditions of the 1970s and 1980s were radically different. Members of many unions in the United States had to accept severe declines in their quality of life either through pay cuts or fringe-benefit givebacks. Other unions faced attacks on their existence as companies developed tactics to convince workers to decertify their unions. Such attacks tend not to be the case in Europe. Although some union members in Europe have had to accept concessions, these concessions generally do not threaten the standard of living of the workers, and they do not represent an assault on the existence of the unions. Fourth, while workers in both high-tech and service industries—both high-growth areas in mature industrial societies—will be covered by existing contracts in Europe, they will not be covered by such contracts in the United States.

Organizational Changes

Challenges to Frederick Taylor's Scientific Management

With his success in popularizing his scientific management theory in the late nineteenth and early twentieth centuries, Frederick Taylor (1911) saw many of his ideas about how to run organizations eventually dominate management practices (Braverman 1974; Hill 1981; Kanter 1977). As Hill (1981) notes, "Taylorism . . . established the basic philosophy of work organization which has dominated the administration of work through to the present day" (p. 27). However, there have been numerous industrial sociology investigations into the consequences of his management philosophy for workers, and calling into question the validity of his insistence that the best way to manage an industrial organization is to have managers conceptualize and plan work and to have workers carefully controlled and carefully instructed on exactly how to do the work. Berggren (1992) argues that the consequences of Taylorism—such as alienation, massive job dissatisfaction, worker absenteeism and turnover, deskilling, and worker powerlessness—were so negative there was a virtual revolt against it during the 1970s in the Western industrial world (p. 232). (For discussions about concerns with the limitations and negative consequences of Taylorism, see Blauner 1964; Braverman 1974; Chinoy 1955; Gersuny 1981; Goldman and Van Houten 1981; Gottfried 1998; Harvey 1975; Roy 1952, 1954, 1958; Walker and Guest 1952; Weil 1962.)

Sociologists have described three especially striking international challenges to the basic principles of Taylorism: (1) Germany's *Mitbestimmung* labor policy, (2) Spain's Mondragon industrial complex, and (3) sweden's automotive assembly system.

Germany's Mitbestimmung *Labor Policy*

Industrial and political leaders of West Germany planning to rebuild the economy of the country after the devastation of World War II decided not only to rebuild the physical plant of industry but also to restructure labor-management relations as well. They embarked on a policy of *Mitbestimmung* (roughly translated, *Mitbestimmung* means codetermination) to ensure that the interests of workers would be given serious consideration in industrial organizational planning (Frege 2003; Furstenberg 1977; Kerbo 2006; Putman 1977). Workers have extensive rights and representation in all but the smallest companies through workers' corporate board representatives and worker councils elected by employees of the company. Kerbo (2006) notes,

> Workers must be given extensive information about all matters affecting them and the whole company; works councils must be consulted on any changes in policies affecting work time arrangements, overtime, work breaks, vacation times, plant wage policy systems, the introduction of new technologies and any other alterations in the work environment, as well as the hiring, transfer, reclassification, or firing of workers. (P. 540)

Furthermore, under German law, workers are assumed to have rights, legal protection, and authority equal to that of stockholders. The supervisory board of large German corporations (roughly equivalent to an American board of directors) must include representation for workers equal to that of stockholders; the supervisory board must be made up of 10 employee representatives and 10 stockholder representatives (see Diamant 1977; Rowley 1977 for critiques of *Mitbestimmung*).

Spain's Mondragon Industrial Complex

After World War II, a Catholic priest began a radical experiment in industrial development in the Spanish town

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 192

of Mondragon. The radical nature of the experiment stems from the way the work organizations are owned and managed. The workers own and control the organizations. Only workers own the organization in which they are employed, and all workers own a share of the organization in which they work. Workers, acting through worker councils in each of the product or service organizations, establish the policies of the company and hire management to carry out the policies; managers are thus the subordinates of the workers. Managers do not make policy, and they have little say in the policies that are created. They must carry out policy; managers who fail to carry out worker directives can be fired (Johnson and Whyte 1977; Whyte and Whyte 1991).

The Mondragon experiment has recorded substantial organizational success. Of the 103 worker cooperatives (and supporting organizations) created between 1956 and 1986, only 3 failed (Whyte and Whyte 1991:3). The number of cooperatives now exceeds 160 industrial and service organizations, and the complex as a whole is recognized as one of the most successful industrial complexes in Europe (see Mondragon 2003, 2005). There has also been success in terms of creating jobs. Employment grew from 23 workers in 1956, to 25,322 in 1992, and to 68,200 in 2003 (Mondragon 2003, 2005; Whyte and Whyte 1991:3).

For a different perspective on the success of the Mondragon experiment—one that focuses much more on the political aspects and implications of the Mondragon experiment—see Kasmir (1996). Writing the results of her ethnographic study from a working-class perspective, Kasmir argues that workers in cooperatives face the same strains as do those not in cooperatives—shift work, assembly line work, routinization of tasks, and demands for ever-increasing productivity. Furthermore, she insists that the cooperatives have political implications. For example, they divide the working class—those in cooperatives from those not in cooperatives—in terms of trying to achieve working-class goals.

Sweden's Automotive Assembly System

In the 1960s, Swedish auto companies faced a labor crisis consisting of very high rates of turnover (which approached 100 percent per year), high rates of both short-term and long-term absenteeism, and the inability to recruit new workers. Searching for an answer to their labor crisis, the Swedish automobile industry leaders discovered the results of studies by sociologists working in industry—especially those studying workers on the assembly line. Based on the results of the studies, those leaders began to completely revamp their production processes (Berggen 1992; Freyssenet 1998).

Volvo was a leader in the changes as it experimented with a series of different assembly systems. All the systems with which they experimented had two distinct features. First, they represented efforts to eliminate the traditional assembly system by having teams assemble major components—for example, an engine or a transmission. Second, they replaced the traditional shop floor hierarchy with work groups responsible for shop floor assembly decisions. The role of the foremen was changed to that of coordinating and planning the activities of the work groups and of providing the logistical and informational support for the activities of the groups. Volvo's Kalmar plant—the first plant designed with the new assumptions—opened in 1974. At that time, it was the world's first auto assembly plant without mechanically driven assembly lines. Speaking of the importance of the Kalmar plant, Berggren (1992) suggests that it was important in several ways; it demonstrated that there were feasible alternatives to the traditional rigid assembly line, that a small factory could produce efficiently because it was more productive than a Volvo plant five times as large, and that a small plant could produce high-quality products because in one of the years of its operation its cars had the highest standards in the history of Volvo (p. 129).

In 1993, Volvo closed Uddevalla—a three-year-old plant designed with their new automotive production principles. Some argued that the failure of the plant cast doubt on the potential success of Volvo's principles, whereas others argued the closure could be explained by other factors (for the debate, see Adler and Cole 1993; Berggren 1994).

A Critique of the Japanese Lean Automotive Production Model

In 1982, Japanese automobile transplants first appeared in the United States with the opening of the Honda plant in Marysville, Ohio (Graham 1995:6). The success of the Japanese automobile industry relative to that of the U.S. automobile industry spurred industrial sociology research into the nature of organizational and management practices of the Japanese. That research agrees that Japanese management practices are as authoritarian as they are under scientific management (Berggren 1992; Graham 1993, 1995). In fact, management—especially in the guise of the foremen—seems to have even greater authority and decision-making power than ever. There are strict and precise management controls concerning (a) the distribution of power—workers have virtually no decision-making authority at all, (b) the way a worker works, (c) the way a worker dresses (he or she will wear company uniforms), and (d) the way the worker thinks (under the "Kaizan" system of continuous improvement, a worker who does not constantly think of new ways of improving productivity is assumed to have the "wrong" attitude and will be sanctioned or even fired) (Berggren 1992).

The Quality Revolution

The Quality Revolution refers to the increasing emphasis by consumers for quality goods and services; it is a label for a revolution of rising expectations in terms of quality. Numerous investigations, including those by

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 193

industrial sociologists, documented how this revolution affected the operations, success, and sometimes failure of U.S. organizations (Dobyns and Crawford-Mason 1991; Kanter 1989; Main 1994; Thurow 1992; Womack, Jones, and Roos 1990). Japanese companies provided the stimulus for this revolution when, after World War II, they emphasized quality in production. Womack, Jones, and Roos (1990), based on their multiyear study of the automobile industry, stated,

> Today, Toyota assembly plants have practically no rework areas and perform almost no rework. . . . American buyers report that Toyota's vehicles have among the lowest number of defects of any in the world, comparable to the very best of the German luxury car producers, who devote many hours of assembly-plant effort to rectification. (Pp. 57–58)

American companies were forced to change their operations, adapt to the new production standards, or go out of business.

Workplace Democracy

As U.S. industrial organizations struggled with the challenges of the Quality Revolution and with the negative consequences of Taylor's Scientific Management, many analysts concluded that the power and authority that were once restricted to management should be redistributed throughout the organization (Blumberg 1968; Fantasia, Clawson, and Graham 1988; Grenier 1988; Guest 1957, 1987; Hodson 1996; Hodson et al. 1993; Kanter 1995; Knights and Collinson 1985; Kornbluh, 1984; Parker 1985; Parker and Slaughter 1988; Peters 1987; Ramsay 1977; Safizadeh 1991; Sorge 1976; Thomas 1985; Turner 1991). Efforts to redistribute this power have various labels—Workplace Democracy, Worker Participation, Participative Management. These efforts range from moderate "fine-tuning" of the traditional worker-management relationships to radical revisions of them. This range can be categorized into four major groupings: (1) humanization of work, (2) labor-management quality-of-work-life (QWL) committees, (3) worker-owned companies, and (4) worker-owned/worker-managed companies (Zwerdling 1978a).

Humanization of work experiments are explicit attempts to improve productivity by improving the workers' QWL. Their underlying assumption is that by improving the QWL, the worker will feel better about work, and if the worker feels better about work, he or she will be a more productive worker.

Labor-management QWL committees experiments represent a more radical step in that they involve significant changes in the power relationships between labor and management because the worker has meaningful power over his or her working conditions. The basic assumption of these experiments is that improving the QWL is a worthy goal in and of itself and that one of the best ways to improve the worker's QWL is to give him or her real power.

Worker-owned company experiments are those in which workers actually own but do not manage the company. The workers own all or part of the company; that ownership may involve a coequal share of the company or may involve unequal ownership. Worker-owned company experiments are particularly important for labor-management relations for two reasons. First, they change the workers' attitudes toward the company because the company belongs to them, and they know their economic future is tied to that of the company. Second, with ownership, workers can have a meaningful say in both the policy and the production decisions that affect their lives. In other words, such experiments have the potential of bringing democracy to the workplace.

Worker-owned/worker-managed companies are obviously the most radical of the workplace democracy experiments and are, therefore, the most infrequently tried. Zwerdling (1978a) suggests that a "true" worker-owned/worker-managed company has the following characteristics. First, it is owned and operated by the people who work in it: Only the workers have control. Second, there is no stock, since stock implies that control is turned over to someone else. If capital is needed, the company uses debt financing. Third, all profits, in excess of operating expenses and investments in productivity enhancement, are divided equally among all workers. Fourth, it is run democratically. All workers regardless of skill and experience make decisions on how the business is run. Each worker has one and only one vote. Fifth, although workers can loan money to the company, their loan will be treated like any other loan and will not entitle them to any special privileges because those special privileges would conflict with the democratic principles on which the organization is based. The Mondragon system discussed earlier is an example of such an organization (for American examples, see Pencavel 2001; Perry 1978; Zwerdling 1978b).

NEEDED INVESTIGATIONS

There are several industrial sociological topics that deserve thorough investigations. Among them are a sociology-based explanation for the British Industrial Revolution, a sociological understanding of the great depressions, and an exploration of the impacts of globalization.

A Sociology-Based Explanation for the British Industrial Revolution

Given the profound consequences of industrialization for the organization not only of work but also of society itself, it is surprising that relatively little sociological effort has been invested in explaining why the first Industrial Revolution—the one that occurred in Great Britain approximately in 1750 to 1850—occurred (for two such sociological explanations, see Brown 1966; Campbell

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 194

1987). To date, the best explanation is an ecological one (Charlton 1986; Wilkinson 1973). In an important study dealing explicitly with ecological analysis and cultural evolution, Wilkinson (1973) argues that the underlying explanation for the Industrial Revolution can be found in ecological factors. He states,

> The ecological roots of the English industrial revolution are not difficult to find. The initial stimulus to change came directly from resource shortages and other ecological effects of an economic system expanding to meet the needs of a population growing within a limited area. (P. 112)

He illustrates the process by describing how the timber shortage caused by the cutting down of the forests of England resulted in the shift to coal as the country's principal energy source. That shift, in turn, led to the invention of Newcomen's atmospheric engine (which was eventually modified by James Watt into a steam engine) because of the need to pump water out of the flooded coal mines. In effect, he argues that Great Britain's Industrial Revolution was a series of necessary adaptations resulting from the degradation of an environment whose carrying capacity had been exceeded.

Although there is convincing evidence that environmental changes played an important role in the British Industrial Revolution, single-factor explanations for such an historical event should be considered suspect. The driving force in Wilkinson's theory is population increase. Yet for the century preceding the Industrial Revolution, the population of England was relatively stable (Deane 1965:11; Wilkinson 1973:71). Why, starting at about 1750, did the population of England dramatically increase? It is reasonable to assume that social factors played a part.

A Sociological Understanding of the Great Depressions

Industrial societies endure depressions—severe economic downturns characterized by drastic declines in production and extremely high levels of unemployment. There have been three economic depressions so far. While there is widespread acknowledgement of the Great Depression of the 1930s, there is little acknowledgement of the two prior depressions endured by industrial societies. The United States was not industrialized enough to be severely affected by the first depression—the one that devastated England from roughly 1820 to the mid-1840s (Gordon 1978). However, the industrial boom that the United States experienced after the American Civil War resulted in an industrial nation susceptible to economic fluctuations, and it was hard-hit by the second depression. For almost 20 years, starting in 1873, the economies of the United States and other industrialized nations endured what economic analysts at that time called the "Great Depression" (Gordon 1978; for a good summary of that depression, see Parshall 1992). In the United States, that depression resulted in such a massive concentration of business power that an alarmed federal government was forced to intervene as "trust busters" during the first two decades of the twentieth century. The Great Depression of the 1930s changed the United States in even more fundamental ways than had the second depression. In response to the collapse of the American economy, the National Industrial Recovery Act was passed to give the federal government extraordinary powers to intervene in the economy. The federal government was also forced to provide massive support to the U.S. economy (Watkins 1993). That support continues today: the housing industry is supported by legislation that allows homeowners to claim as tax deductions interest paid on home mortgages, the agricultural industry is supported by a multi-billion-dollar farm subsidy program, and numerous businesses are protected from international competition by high import tariff and import quotas. Given the enormous social organization consequences of depressions, it is curious that industrial sociologists have not devoted more time and effort to describe the depressions and their consequences and understand why they occur.

Understanding the Implications of Globalization

Markets were once primarily restricted to small geographic areas because of the limitations of transportation systems. As transportation systems developed, markets became regional and then national. Today, neither consumer nor labor markets are national. Consumers have access to products and services from a world market. And those customers are increasingly taking advantage of that world market. They demand quality products and services, and they use that world market in their search for those products and services. Consumers now have access to a world economy. Furthermore, labor markets are becoming international because companies can now "source" their production worldwide (Friedman 2005). That is, they can shift their jobs to whatever location they decide is best for their company, irrespective of the effects of these shifts for the workers, communities, and countries they leave.

The potential consequences of changes in both these markets for the status of industrial organizations and their workers are profound. As Kanter (1995) notes, "Globalization is surely one of the most powerful and pervasive influences on nations, businesses, workplaces, communities, and lives at the end of the twentieth century" (p. 11). There is currently great concern and divergence of opinion about globalization. There are those who focus on the potential of globalization for all societies, not just industrial ones (Friedman 2005). There are others who describe the tremendous costs of globalization. The opposition to the North American Free Trade Agreement and the often violent protests whenever the World Trade Organization meets illustrate their concern (see also Gern 1995; Kamala 1998; Lewis 2002; Michalowski

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 195

and Kramer 1987 for other expressions of concern). Investigations into globalization have documented benefits (Firebaugh and Goesling 2004) and costs (Horn 1993; Sass 2000; Storm and Rao 2004). Further investigations by industrial sociologists into the implications of globalization seem warranted (for examples of such investigations, see Ciccantell and Bunker 2004; Howes 1993; Johnson 1991, 2002; Kanter 1991, 1995; Kanter and Corn 1994; Kappel 1995; Perrucci 1994; Reich 1991; Ross and Trachte 1990; Sallaz 2004; Wolf 2005).

THE FUTURE OF INDUSTRIAL SOCIETIES

The social sciences have documented numerous instances of societal collapse (Catton 1993; Diamond 2005; Tainter 1988). Investigators are intrigued by the survival potential of industrial societies. What are the possibilities?

Every production system negatively affects the environment in some way. The degree and permanence of that environmental degradation, however, varies tremendously. In some cases, it is very limited and short term, whereas in others it is extensive and long term. As societies become larger and more complex, their environmental degradation becomes more pervasive and more permanent.

The degradation is a threat to both individuals and society. In the 1960s, the USSR dumped huge quantities of highly radioactive waste into Lake Karachay. The lake is now so radioactive that anyone standing on its shore for an hour or two will receive a lethal dose of radiation (Lenssen 1992:53). In the early 1980s, the town of Times Beach, Missouri, suffered severe, widespread chemical contamination. Rather than attempt the very costly procedure of rectifying the environmental damage, the U.S. Environmental Protection Agency bought out the residents and declared the town off-limits for humans (Boraiko 1985).

The threat of environmental degradation also extends to the actual survival of society itself. There are numerous instances of societies that have overexploited their resources and degraded their environment to such an extent that the society collapsed. Three of the most well-known examples are Easter Island, the Classic Maya, and the Anasazi of the U.S. Desert Southwest (Catton 1993; Diamond 2005, chap. 4; Pennsylvania State University and WQED 1993; Thorne 1989). (For other examples of societal collapse, see Chedd 1980; Diamond 2005; Tainter 1988.)

What, then, can be said about the future of industrial society? After all, industrial societies are among the largest and most complex of all societies and create some of the most pervasive and permanent environmental degradation. Predictions of the future of industrial society differ greatly. This range of alternatives can be collapsed into three major categories: pessimistic, moderate, and optimistic.

Pessimists point out that industrial societies are complex, resource-consuming, and environmentally degrading societies. The dismal history of other such societies suggests that industrial societies have a limited life span. Societal complexity, high rates of resource consumption, and extensive environmental degradation all seem incompatible with societal longevity. Few, if any, complex societies have survived for even a thousand years. Some analysts (Daily, Ehrlich, and Ehrlich 1994; Pimentel et al. 1994) claim that the world community has already exceeded the world's carrying capacity and the resultant environment degradation will inevitably lead to the collapse of society. An early investigation into the consequences of human population growth was conducted by researchers at the Massachusetts Institute of Technology (Meadows et al. 1974). They conducted a series of computer simulations focusing on "the five basic factors that determine, and, therefore, ultimately limit, growth on this planet—population, agricultural production, natural resources, industrial production, and pollution" (Meadows et al. 1974:xi). In the course of their investigation, they systematically varied the value of each of the crucial factors. Despite changing the assumptions, the end result was almost always the same. The system continued to grow beyond what could be sustained and collapsed within a hundred years. Their computer models indicated that there was only one possible set of conditions that would stabilize the system and that was to simultaneously control population and industrial output. In other words, industrial societies had to be radically redesigned. Two decades later, the team updated their original study (Meadows et al. 1992). They discovered that their original time frame was wrong. Their analyses suggested that without substantial change—not just minor "fine-tuning"—industrial society would collapse in as little as 20 years. Pessimists, then, argue that industrial societies as they currently operate cannot survive, and that without substantial change, industrial society as we know it will collapse. In fact, some argue that the negative impacts of such societies are so severe that they should not survive (Lewis 2002).

Proponents of moderate scenarios share with the pessimists the common theme that industrial society is sustainable indefinitely only if changes are made in its basic operating assumptions (Dobkowski and Wallimann 2002). Whether they argue for developing a "steady-state economy" (Daly 1973; Postel and Flavin 1991), or for the importance of building a "sustainable society" (Brown 1981), or for the value that "small is beautiful" (Schumacher 1973), they insist that industrial societies can survive long term only if the premises on which they are based are substantially changed. And the core change centers on the concept of sustainability. In a sustainable society, renewable resources are used at a rate that ensures the indefinite survival of the resource, while the use of nonrenewable resources is de-emphasized or even abandoned. In sum, proponents of moderate scenarios are optimistic about the future of industrial societies. They argue that moderate, not radical, changes in the operation of industrial societies will allow industrial societies to survive.

Bryant-45099 Part V.qxd 10/18/2006 7:22 PM Page 196

Optimists insist that despite all the problems facing industrial societies, the future is not bleak but is instead filled with possibilities. They suggest that not only are industrial societies not threatened by the problems that have been documented but also that the problems may ultimately disappear as pressing human concerns (Budiansky 1994; Simon 1981). The optimists focus their attention on what they believe to be a misplaced emphasis on the problems of overpopulation and resource limits. They argue that even if the pessimists are right about resource limits, technological innovations will overcome any problems created by the limits. They note, for example, that as copper has become more expensive, fiber-optic cable has been used in its place (Simon 1981). According to the optimists, then, the future of industrial society is bright. The creativity and innovation of people in industrial societies and the productivity of industrial production systems will yield increased wealth and a better quality of life for all. Population growth will cease to be a problem, and resources will become more abundant and less expensive (Simon 1981).

SUMMARY

There is little reason to believe that the subdiscipline of industrial sociology will ever attain its former prominence. However, given the importance of work in industrial societies, there is little doubt that there will continue to be theoretically and practically important investigations into industrial sociology topics.