Catholic Social Tradition Series

VOLUME TWO

Preface to the Series

In *Tertio millennio adveniente,* Pope John Paul II poses a hard question: "It must be asked how many Christians really know and put into practice the principles of the church's social doctrine." The American Catholic bishops share the pope's concern: "Catholic social teaching is a central and essential element of our faith . . . [and yet] our social heritage is unknown by many Catholics. Sadly, our social doctrine is not shared or taught in a consistent and comprehensive way in too many of our schools." This lack is critical because the "sharing of our social tradition is a defining measure of Catholic education and formation." A United States Catholic Conference task force on social teaching and education noted that within Catholic higher education "there appears to be little consistent attention given to incorporating gospel values and Catholic social teaching into general education courses or into departmental majors."

In response to this problem, the volumes in the Catholic Social Tradition series aspire to impart the best of what this tradition has to offer not only to Catholics but to all who face the social issues of our times. The volumes examine a wide variety of issues and problems within the Catholic social tradition and contemporary society, yet they share several characteristics. They are theologically and philosophically grounded, examining the deep structure of thought in modern culture. They are publicly argued, enhancing dialogue with other religious and nonreligious traditions. They are comprehensively engaged by a wide variety of disciplines such as theology, philosophy, political science, economics, history, law, management, and finance. Finally, they examine how the Catholic social tradition can be integrated on a practical level and embodied in institutions in which people live much of their lives. The Catholic Social Tradition series is about faith in action in daily life, providing ways of thinking and acting to those seeking a more humane world.

Michael J. Naughton
University of St. Thomas

Todd David Whitmore
University of Notre Dame

Rethinking THE Purpose OF Business

Interdisciplinary Essays from the Catholic Social Tradition

edited by
S. A. Cortright & Michael J. Naughton

University of Notre Dame Press
Notre Dame, Indiana

23. The *Forbes 400* wealth was $624 billion in 1997, $738 billion in 1998, and $1 trillion in 1999. See www.forbes.com, accessed November 2001.
24. Wolff, "Recent Trends in Wealth Ownership," 10.
25. *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, 1999), 421.
26. John Paul II, *Laborem exercens,* 14.
27. *Economic Report of the President,* 348.
28. John Paul II, *Laborem exercens,* 14–15.
29. Pius XI, *Quadragesimo anno,* 120.
30. John Paul II, *Centesimus annus,* 42.
31. Ibid., 35.
32. Sam Brittan, *Capitalism with a Human Face* (London: Edward Algar, 1995).
33. Peter Drucker, "The Age of Social Transformation," *Atlantic Monthly,* September 1994.
34. Michael Porter, *Capital Choices: Changing the Way America Invests in Industry,* a research report presented to the Council on Competitiveness and cosponsored by the Harvard Business School (1992).
35. Kevin Kelly, *Out of Control* (Reading, Mass.: Addison-Wesley, 1994).
36. John Paul II, *Centesimus annus,* 35 and 38.
37. Margaret Blair, *Ownership and Control* (Washington, D.C.: The Brookings Institution, 1995), 287.
38. Charles Hampden-Turner and Alfons Trompenaars, *The Seven Cultures of Capitalism* (New York: Currency Doubleday, 1994).
39. Interview by Carla Rapaport, "Charles Handy Sees the Future," *Fortune* (October 31, 1994), 162.
40. Arthur Schlesinger, Jr., "Has Democracy a Future?" *Foreign Affairs* 76, no. 5 (September–October 1997): 2.
41. As Paul Kennedy notes: "The internationalization of manufacturing and finance erodes a people's capacity to control its own affairs. . . . The real logic of the borderless world is that nobody is in control—except, perhaps, the managers of multinational corporations, whose responsibility is to their shareholders, who, one might argue, have become the new sovereigns, investing in whatever company gives the highest returns. . . . The people of the earth seem to be discovering that their lives are ever more affected by forces which are, in the full meaning of the word, irresponsible" (*Preparing for the Twenty-First Century* [New York: Random House, 1993], 12).
42. John Paul II, *Sollicitudo rei socialis,* 36.
43. John Paul II, *Centesimus annus,* 27.

13

Humane Work and the Challenges of Job Design

JAMES B. MURPHY AND
DAVID F. PYKE

Chesterton said that when it comes to sex, we are all a little bit crazy. Well, work is also the occasion of a good deal of moral confusion. Our intuitions about the value of work—even the value of our own work—can shift dramatically from moment to moment, revealing a deep incoherence. Often we see work, if not as a necessary evil, then as a mere instrument for "making a living"; in this mood we may hope for emancipation from work, either as an individual, by (say) winning the lottery, or as a society, by some miracle of automation. At other times, however—perhaps as we contemplate our lives devoid of work—we realize that we might actually enjoy our work, that we value it even apart from the income, status, and power it might bring. As we recall the skills we have acquired at work and the pleasure of exercising them—the obstacles we have faced and surmounted, the projects accomplished, the services rendered—we realize that we find in work a unique source of human fulfillment, that work, along with friendship, religion, knowledge, play, and marriage, is a basic good of human life. Indeed, if we consider the amount of time many of us devote to our work (far beyond the need to earn our keep), and if we compare this to the amount of time we devote to our spouses, to our children, to our

friends, to our church, to beauty, or to play, we might have to conclude that in practice we have made work not just one intrinsic good among others, but actually our *summum bonum.*

Our conflicting intuitions about work are indicative of a widespread moral confusion about the value of work: we live in a society in which work, like sex, is simultaneously overrated and undervalued. On the one hand, looking at the hours we spend at work, it is clear that many of us overrate work and make it an idol, on the altar of which we happily sacrifice the equally valuable goods of family, religion, beauty, play, and friendship; on the other hand, we also degrade work into a merely instrumental good, purely a means to money—even though work can be intrinsically valuable as an opportunity for self-realization through the acquisition and exercise of skills. What we wish to argue in this essay is that work ought to be seen as neither a mere necessary evil nor as the highest good; rather work is something in between: more than a mere instrumental good, but less than the highest good. Work affords a unique opportunity for human flourishing; as such, it is an intrinsic good on a par with play, beauty, friendship, marriage, knowledge, and religion.

Our focus, however, is not the appraisal of work in our society generally but, rather, the appraisal of work by managers, as manifested in the practices of job design. By both statutory labor law and collective bargaining agreements, job design in our society is virtually the sole prerogative of management. The design of jobs by managers, of course, is constrained by productive techniques and by competitive markets; still, within these broad constraints, managers make decisions about the hours of work and about the skill content of work that reflect their views of the value of work and the purpose of business. These decisions reflect the general tendency to both overrate and undervalue human labor and the business organization.[1]

The Problem: Overrated Work, Overworked Americans

That work has become seriously overrated in our society as a whole is evident in the trends documented by Juliet Schor in her book *The Overworked American.* While European workers have been gaining

vacation time since the 1960s, American workers have been losing it.[2] For nonsupervisory workers, overtime is at record levels, while supervisors and professionals are working the longest hours since the Second World War. Schor's argument that individual workers in the aggregate are working longer hours than since the 1950s has been disputed, but no one denies that families are working more jobs and longer hours outside the home than we have seen since the war. We are now reaping the bitter harvest of families juggling two, three, or four full-time jobs: the deprivation of sleep, the marital stress, the neglect of children, the neglect of school by working teenagers, and the decline of civic association and volunteerism. According to economist Sylvia Hewlett, "child neglect has become endemic to our society," in large part because children are left to fend for themselves while their parents are at work. Another economist, Victor Fuchs, found that between 1960 and 1986, the time parents had available to be with children fell ten hours a week for whites and twelve for blacks.[3]

What is curious is that although productivity per capita has doubled since 1948, meaning that we could produce a 1948 standard of living by working half the hours we now work, virtually no one has proposed that we use our productivity growth to buy more time for family, friends, community, church, and play. Instead, while we are richer than ever we have less leisure than ever: all that money and no time to enjoy it. By contrast, from 1840 to 1940 rising productivity was translated into shorter working hours and more leisure on the sound theory that work and wealth ought to create time for the enjoyment of a range of human goods. Since the 1940s, however, work has increasingly crowded out those other goods. Why Americans, unlike many Europeans, have lost interest since the 1940s in translating growing productivity into a shorter work week is rather mysterious and may simply reflect the decline of the labor movement.[4]

How do managers in particular foster this overrating of work? By designing jobs with fixed, one-size-fits-all, and often very long, hours. The rigidity of work schedules combined with the sheer number of hours required or expected gives work undue dominance over all other human goods. Work, then, becomes the first priority, crowding out the pursuit of other equally valuable goods: family, friends, church, play,

knowledge, and beauty are relegated to the interstices of work. The job alone is fixed. Everything else must conform to its demands—even church services. In a very poor society, where basic needs cannot be met, such a priority for work might be justified; in our society it is harder to justify the dominance of work.

Still, much contemporary overwork is voluntary, as can be seen in the rising labor force participation of teenagers and women as well as in the rise of moonlighting. For the majority of American workers whose real incomes have fallen since 1973, longer hours are, in part, a conscious or unconscious attempt to preserve an eroding standard of living. But longer hours also reflect a rising aspiration for consumer goods and the joys of shopping. Let's face it, many of us are caught in what Schor calls the "squirrel cage" of working and spending. Our consumer ambitions outpace our incomes: the more we earn the more we want. Our squirrel cage of working and spending was eloquently denounced by Monsignor John A. Ryan back in the 1930s:

> One of the most baneful assumptions of our materialistic industrial society is that all men should spend at least one-third of the twenty-four hour day in some productive occupation. . . . If men still have leisure [after needs are satisfied], new luxuries must be invented to keep them busy and new wants must be stimulated. . . . Of course, the true and rational doctrine is that when men have produced sufficient necessaries and reasonable comforts and conveniences to supply all the population, they should spend what time is left in the cultivation of their intellects and wills, in the pursuit of the higher life.[5]

A Solution: Creating a Market in Leisure Time

The problems of the overworked American cannot be solved unilaterally by managers: government, unions, political parties, and business leaders must all play a role in redressing the balance between work and the other goods of human life. As the essays throughout this volume have argued, dealing with issues such as the purpose of business or the problem of overwork requires us to have the right end in mind and to employ effective techniques toward bringing about this end. As is the case with all our activities within the framework of the Catholic social tradition, the goal is to create work structures that promote human development, both individually and communally. It is always worth reminding ourselves of this goal, even if, as is the case here, the technical problems may need more creative imagination and thought. Since these latter problems are more challenging and interesting technically, we can all too easily get tied up in them and forget the goal for which we are working. We do not want leisure just for the sake of consumption, or just for the sake of leisure itself. We want to create more leisure time so that people have the chance to more fully develop, in the context of the promotion of the common good.

A challenge is how to provide mechanisms that enable us as individuals and as a society to translate economic growth into the growth of leisure. After all, from the point of view of optimal economic performance, it is a matter of indifference whether productivity growth is distributed as higher incomes or more free time. Yet we have good reason to believe that our existing market institutions will not spontaneously turn rising productivity into more free time. Interestingly, in the 1950s and 1960s, rapid economic growth led many social scientists and commentators to announce, in somewhat ominous tones, the arrival of the new "leisure society"; fears were expressed in many quarters that average people (them, not us) would not know what to do with the vast amounts of free time soon to be on their hands. Of course, all this sounds quite silly now, as families find it increasingly difficult to find any free time at all amidst the growing demands of work. We now see that these false prophecies rested on the naive assumption that productivity growth in a market economy inevitably translates into shorter working hours. Unfortunately, we know from history that widespread reductions in working hours have come mainly through legislative interventions, such as the Ten-Hours Act and the Fair Labor Standards Act.

One key reason why existing market institutions do not translate productivity gains into more free time is that we have not yet developed a market for free time, meaning that the supply and the demand for free time are unlikely to find a spontaneous equilibrium. The challenge is to design jobs with enough flexibility so that employees can trade off

income gains for a shorter workday or an occasional sabbatical. The first step in creating a true market in free time is to enable prospective workers to make a trade-off between income and leisure in the choice of jobs. Schor suggests that firms be required to standardize the hours of their salaried employees; they can set the standard at any level, but then work beyond that standard would have to be paid for.[6] This standardization, by giving prospective employees more information about the job, would facilitate a better equilibrium across firms between the demand and the supply of free time.

Consulting firms provide an interesting example. Many graduates of MBA programs are hired by consulting firms at extremely high salaries and with generous signing bonuses, but the job requires an enormous amount of travel and very long hours. The graduates often make an explicit choice to sacrifice free time and family life in exchange for the consulting experience and financial rewards. Our observation is that most move to other jobs within a few years because the travel schedule takes its toll on young families. No one is surprised by the demands of consulting, and graduates can make thoughtful choices if they are so inclined. The demands of jobs at other firms are not always so clearly communicated. It would be a great service to prospective employees if the information were available so they could make the trade-offs we are advocating.

The second step in creating a market in free time would be to design jobs so employees within a firm can make trade-offs between income and leisure. Here managers must take the lead role in designing mechanisms to facilitate these trade-offs. One small software firm uses an interesting approach with new employees. Each new software engineer is offered the going salary for her level. The president of the company then offers to lower the salary in exchange for a larger year-end bonus. This bonus is based on the firm's financial performance and the employee's contribution to it. Employees therefore can choose, to some extent, the level of their contribution and the level of risk they are willing to take on.

Many companies are recognizing the need for flexible working hours, particularly at a time when management talent is in such short supply. A manager at the consulting firm of Deloitte and Touche arranged a schedule with 15 percent fewer working hours so that she

could spend more time with her children. The same firm arranged a lighter workload for another employee, even though he does not have children. These firms may require intense commitment at times, particularly when projects are nearing completion. However, there appears to be a new willingness to arrange flexible hours so employees will remain happy and not move to another firm.[7] As part of a survey of 238 companies, *Fortune* magazine called dozens of employees to find out why they were staying in their current jobs rather than moving. Answers included flexible hours without inhibiting opportunities for advancement, opportunities for promotion from within the firm, and exciting overseas assignments. Interestingly, not one person mentioned money.[8]

Some additional examples may be helpful to managers and business students. Moog, an aerospace company near Buffalo, has no time clocks or strict work rules and gives employees an additional thirty-five days of paid vacation on the tenth year of service and every five years thereafter. In a similar vein, Corning gives employees ten extra days of vacation every five years. Ohio National Financial near Cincinnati uses flexible schedules, profit sharing, an on-site fitness center, and other perks to keep employees enthusiastic about their work. About 8 percent of employees at USAA, an auto and life insurance firm in San Antonio, work a four-day week. John Deere of Moline, Illinois, has superb relations with its unionized workforce. In fact, Deere managers say that their workforce is their primary competitive advantage in the marketplace. Deere has a no-layoff policy, on-site medical clinics, and a good pay and benefits package. These firms have discovered that such initiatives are important to employee retention, productivity, and general enthusiasm for work.[9]

We have observed an interesting pattern in these examples. Firms in which workers' functions are tightly linked to one another tend to be less flexible than firms in which individuals can work on their own. The former tend to use profit sharing, additional vacation or sabbatical time, on-site child care, and other incentives, while the latter can allow employees to have much more flexible work hours. Notice that Deere does not use flexible hours. Today's manufacturing firms are often required to reduce inventory drastically if they want to maintain parity with foreign competitors. Work-in-process inventory is a buffer

between stages of production, and these buffers must increase in the presence of variability or uncertainty. Poor quality and variable process times, for instance, generate variability in production, leading to higher levels of inventory. Imagine trying to operate a tightly linked assembly line if some workers choose to work 9:00 A.M. to 6:00 P.M. while others work 7:00 A.M. to 4:00 P.M. Inventory would need to increase, or the factory would slow down for hours at a time. Deere has no choice but to provide incentives and benefits that do not create a scheduling and inventory nightmare on the assembly line. Like Corning, Deere can provide extended vacations because these are easier to accommodate than daily disruptions and variability. USAA, on the other hand, can be much more flexible in scheduling employees. As long as there are enough people to answer phones each hour, it is not necessary that an entire department be on-site at the same time.

In general, managers may be constrained in their ability to provide flexible hours, regardless of their desire to do so. Common constraints include production scheduling, workforce scheduling, and the necessity for teamwork and communication. These depend in turn on the type of production process, the products produced, and the industry in which the firm competes. Complex assembly processes, for instance, often require more teamwork and communication among stages of production than simple modular assembly. The new Volkswagen plant in Resende, Brazil, provides an interesting case. In this truck assembly plant, suppliers of seven major components actually perform the assembly operations on the Volkswagen assembly line. Although we do not have information about flexible work hours, this type of modular assembly can certainly accommodate them. Volkswagen claims that this innovation cannot be employed at its engine assembly plant because of the complex interactions among engine components. Communication and teamwork are more important in the engine plant than in the modular truck assembly operations. In our view, managers should examine the possibilities for employees trading off work and leisure in light of how tightly coupled the work is. Even if work is tightly coupled, however, there are many options for allowing employees to choose among the basic goods of human life.

Of course many workers, especially in times of stagnant real wages, will resist opportunities to shorten their working hours by reducing

their incomes. The first thing to be said about this is that shortened hours need not always require reduced pay. Many managers who have experimented with shorter workdays and weeks have found that the increased productivity makes up for the lost time. Shorter hours mean fewer breaks and less fatigue, better morale and lower absenteeism. So some reductions in working hours, say from forty to perhaps thirty-five, can be had with little loss of income or rise in unit labor costs. Since workers are much more willing to trade off future earnings for leisure than current earnings, Juliet Schor recommends that every firm be required to offer each employee a choice about how to share the productivity dividend: either more money or more leisure. Every year, each employee could then choose whether to take, for example, a 5 percent raise or a 5 percent reduction in working hours.[10] Over time, many workers would realize that they are better off keeping their income constant, in real terms, and watching their free time grow. As it stands now, most of us have little or no choice over how much of our lives to give to work; rather, we take the demands of our work as a given, and we reduce our commitments to family, friends, church, beauty, and play accordingly. Such constrained choices reflect the ways in which we overrate the value of work compared with the other basic goods.

The Problem: Underrated Work, Degraded Workers

If pervasive overwork in our society reflects in part the way in which we overrate work, so the ubiquity of repetitive and stultifying work reflects the way in which we undervalue work. Work is valuable not just because of what it produces but also because of its intrinsic potential for the self-realization and well-being of the worker. For most people, work is the primary arena for the transformation of aptitudes into skills; thus, the character of work has a profound effect on the character of workers.

We often do not value things properly until they are threatened, and it is noteworthy that the first profound insights into the intrinsic value of work came only when many highly skilled trades had been fragmented into degrading routines during the industrial revolution. Observing how the degradation of labor caused a stultification of the

laborers, Adam Ferguson and Adam Smith came to realize the unique value of skilled work in perfecting the character and intellect of workers. Although Adam Smith is best known for his celebration of the role of the division of labor in promoting the productivity of firms and, hence, the wealth of nations, he also believed that this same division of labor would take a terrible toll on the intellect and character of individual workers:

> the understandings of the greater part of men are necessarily formed by their ordinary employments. The man whose whole life is spent in performing a few simple operations, of which the effects, too, are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion and generally becomes as stupid and ignorant as it is possible for a human creature to become.[11]

What Smith is saying is that work affords a unique opportunity for self-actualization, but one that can be squandered or corrupted. Work that challenges us to exercise our capacity for invention, that develops mental and manual skills, will greatly contribute to our well-being, just as work that never poses challenges, that requires no real skills, will cause our minds to atrophy.

Smith applies Aristotle's argument that human beings flourish by actualizing their potential in the development of complex skills. As John Rawls describes this Aristotelian principle: "Other things being equal, human beings enjoy the exercise of their realized capacities (their innate or trained abilities), and this enjoyment increases the more the capacity is realized, or the greater the complexity."[12] Or in the words of John Paul II, since "the (primary) purpose of any kind of work that man does is always man himself," so that "man does not serve work, but work serves man,"[13] humanly sound job design implies an insistence on the primacy of the person throughout the work process, so that at no point is human activity reduced to a mere instrument for economic gain. This principle has been stressed repeatedly throughout this volume, but it becomes concretely manifest when we look at the way jobs are designed. Work must be an activity in which the person is seen and felt to be the "subject," that is, the active agent who both transitively accomplishes a task through working on "objects" and reflexively accomplishes her own development by deploying and developing specifically human powers.

In a landmark series of studies, Melvin Kohn and Carmi Schooler have clearly demonstrated the profound role of work in promoting or stunting intellectual growth. By carefully testing the intellectual capacities of a group of men in 1964 and then again in 1974, and by measuring the complexity of their job tasks, Kohn and Schooler found that the cognitive capacities of men with simple and repetitive jobs deteriorated.[14] Adam Smith's supposition that a worker "whose whole life is spent in performing a few simple operations . . . generally becomes as stupid and ignorant as it is possible for a human creature to become" has now been given empirical support. In short, we now have a great deal of evidence not just that people value challenging work, but also that such work is objectively valuable to them.

Work has dignity to the extent that the worker shares in both the conception and the execution of his tasks. Managers undervalue work by designing jobs that require many workers to execute mindless tasks conceptualized by others. Many studies have shown how fragmented, monotonous, and repetitive work causes the deterioration of the cognitive and moral capacities of workers. A detailed manpower survey by the New York State Department of Labor, for example, found that "approximately two-thirds of all the jobs in existence in that state involve such simple skills that they can be—and are—learned in a few days, weeks, or at most months of on-the-job training."[15] Jeremy Rifkin estimates that about 75 percent of the workers in most industrial nations engage in work that is little more than simple repetitive tasks.[16] With so many jobs requiring so few skills, it is perhaps not surprising that only one-quarter of American jobholders say that they are working at full potential.[17] As a Case Western business consultant put it: "We have created too many dumb jobs for the number of dumb people to fill them."[18] The great tragedy in all this, as Pius XI observed in 1931, is that "dead matter leaves the factory ennobled and transformed, where men are corrupted and degraded."[19]

A Solution: Job Enrichment

Instead of our existing practice of habituating workers to the degrading tedium of their jobs, jobs too small for the human spirit, we must rather explore the possibilities of redesigning jobs to serve the human quest for self-realization. One reason for the ubiquity of degraded jobs is the widespread assumption, from Adam Smith to Frederick Taylor and beyond, that the technical division of a labor process into discrete tasks requires that workers be limited to one or a few such tasks. Yet, as we shall see, although efficiency does require that labor processes be analyzed into discrete tasks, it does not follow that workers must be limited to one or even a few such tasks. Let us consider Adam Smith's famous description of the division of labor in a pin factory: "One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head."[20] Although readers for two centuries have accepted this as a simple and unambiguous description of the division of labor, Smith is actually describing two very different operations. The first is the analysis and separation of a process into distinct steps; the second is the assignment of these steps to distinct workers. What is misleading about Smith's description is his assumption that there must be a one-to-one correspondence between the division of the work and the division of the workers.

There is no doubt that the analysis and separation of a productive process into its constitutive parts greatly enhances the efficiency of labor. A single worker, however, can often realize this efficiency: he would draw wire for, say, a thousand pins, then straighten them all, cut them all, point them all, grind them all, and so forth. This division of labor is known as batch production. Since each step in many productive processes requires setup and cleanup, batch production can greatly reduce the time spent moving from one operation to another. The size of the batch depends directly on the time it takes to set up and clean up an operation. One of the innovations of just-in-time manufacturing is setup time reduction, allowing the batch size to decrease in some cases to one unit. We will have more to say about this below. The first and essential conclusion is that efficiency does require a detailed technical division of tasks, but it does not require an equally detailed division of workers. There are, of course, constraints upon the number of

tasks that can be performed efficiently by a single worker; at some point, the division of tasks requires the division of workers. Nonetheless, there is considerable flexibility in the efficient distribution of specific tasks to specific workers.

In craft production, a single worker can make an entire product from start to finish or he can make component parts in batches, which are later assembled. In other words, in craft production, a single worker performs a variety of tasks: the workers are not divided but the work is divided into distinct tasks. Craft production remains an efficient mode of production for certain products and industries. Let us illustrate with several examples. At Beretta, an Italian small arms manufacturer, the nature of work remained unchanged for several centuries, from 1500 to about 1800.[21] A craftsman would make an entire product or component alone or with the help of a master. Each product was unique because the craftsman forged, filed, and fit it together before it was hardened. Thus, fabrication and assembly were closely intertwined, and the worker performed both. A craftsman would work most of his life to become a master, and then he would train his apprentices as well as perform his tasks. Craft production is evident today in a number of industries and firms, including building cruise ships and Rolls-Royce automobiles, and some software development. Workers in craft production often are required to blend intellectual and manual work, and frequently the ideal of shared conception and execution is realized.

For some firms, a possible solution to the degradation of labor is for managers to organize their operations using craft production. Volvo's heralded experiment with a team-built car at its Uddevalla plant is an example. Unfortunately, craft production is simply not competitive in many industries. High volume, repetitive manufacturing is not efficient using this method. Rolls-Royce, for instance, has lost money for years on automobile production, and that business has now been sold; and Rolls-Royce is not even a high volume manufacturer. Likewise, Volvo's Uddevalla plant ended in failure.[22] It should be noted that Volvo is reopening the Uddevalla plant for production of low-volume, niche-market vehicles. It remains to be seen whether Volvo can successfully operate a team-build plant in the auto industry, but it is clear that this method is not feasible when production volumes are high.

The more common forms of production in the automotive industry are "scientific management" and "just-in-time" production. The scientific management movement started around 1900 with the work of Frederick Taylor. Taylor determined that humans could be analyzed with the same methods and precision as machines. Time study, a stopwatch, piecework, and other financial incentives became the industrial engineer's tools for increasing productivity. Managers controlled line workers by measuring them against a standard. There was "one best way" to do any given job. Managers and industrial engineers performed all the intellectual work, while line workers performed repetitive menial tasks. For the first time in history, the study of the procedure of manufacture was independent of the process of manufacture. Scientific management is evident today in high-volume automobile assembly, as well as in many other industries, including apparel, shoes, and other discrete parts assembly operations. As scientific management gained acceptance in the automotive industry, most notably at Ford, craft manufacture rapidly died out, except in a handful of low-volume producers.

Toyota and other Japanese automotive and consumer electronics firms pioneered the development of just-in-time (JIT) manufacturing. JIT is a multifaceted system that fundamentally addresses waste in the production system.[23] Inventory is wasteful, for example, and JIT attempts to reduce it as much as possible by, among other things, improving quality and reducing the batch size. One of the innovations of just-in-time manufacturing is setup time reduction, allowing the batch size to decrease in some cases to one unit. In pursuit of waste reduction, JIT relies on line workers to suggest and implement improvements to the production process. Workers are required to meet in teams to brainstorm ways to streamline production, improve quality, lower costs, and so on. Thus, JIT gives workers more responsibility and more opportunities for using their creative capabilities. In fact, managers often seek input from line workers when developing the assembly line for a new product, enabling workers to share in the conception and execution of tasks. JIT is employed at Toyota, Nissan, and other Japanese automotive assemblers, many U.S. and European automotive assemblers, and a host of other discrete parts manufacturing facilities. In fact, because of the clear superiority of JIT over scientific management, most automotive firms are striving to implement it.

This leads us to a second possible solution to the problem of the degradation of labor: instead of reverting to craft production, managers in factories employing scientific management could move to JIT manufacturing. The benefits for workers seem obvious, and the evidence suggests that JIT is more competitive. Once again, however, there are pitfalls. For instance, JIT often creates a highly stressful environment. Many researchers argue that the outcome of workers' improvement efforts is simply that they work faster. A significant amount of the debate about Volvo's Uddevalla plant has centered on the stress levels of JIT, or lean, manufacturing. Our discussions with managers at several successful JIT factories in the United States, Europe, and Japan suggest that workers actually perform intellectual activity quite rarely. The content of the jobs is almost entirely menial unless a new product is being introduced or a problem arises in assembly. In fact, all managers said that the workers, while appreciating the fact that managers value their input and ideas, do not like their jobs. Most were surprised that we would even raise the question. We should emphasize, however, that the attitude of management toward workers is dramatically different in scientific management and JIT; and workers know the difference. Nevertheless, the bulk of the workday in both systems is spent on mind-numbing activities.

From this discussion emerges the difference between two fundamental strategies that have been proposed for the problem of the degradation of human labor: job enlargement and job enrichment. Job enlargement gives more activities to each worker. For instance, instead of one person setting up the machine and another running the batch, one person can do both activities. This highlights our point above that there need not be a one-to-one correspondence between the division of the work and the division of the workers. Workers in factories utilizing any type of manufacturing can benefit from this insight, but the primary application is in scientific management because of its reliance on mind-numbing work. Recent research on apparel manufacturing, for instance, describes U-shaped lines in which workers share tasks. Each worker performs several operations and often helps other workers if needed.[24] The U-shape facilitates communication among workstations. Some apparel firms, and many firms in other industries, have implemented similar methods.

If, as we have said, work has dignity to the extent that a worker participates in the conception as well as in the execution of tasks, then job enlargement cannot do much to enhance the dignity of work. Job enlargement means a greater variety of tasks to execute, but no greater responsibility in the conceptualization of those tasks. For example, apparel workers on U-shaped lines perform multiple jobs using one set of skills; this is enlargement. Job enrichment, on the other hand, involves giving workers a greater role in the planning of work tasks. Workers at JIT plants who help with a new product introduction perform tedious tasks for part of the day and then use their creativity to help conceptualize the layout and sequence of operations for the new product. They even make suggestions for how to improve the product design so that it will be easier to assemble. At a sweat suit factory in North Carolina, managers encouraged teams of workers to determine the sequence of jobs and the division of work. Managers provided incentives and goals, but the workers made all other decisions regarding the tasks. In these cases, the distinction between intellectual and manual work, between line and staff, is blurred, and workers share in both the conception and the execution of their tasks.

Job enrichment is found today at Beretta, the Italian small arms manufacturer. Beretta had implemented both scientific management and JIT, as they became popular. The advent of numerically controlled (NC) machine tools, however, propelled Beretta into an entirely new world, that of computer integrated manufacturing (CIM). In CIM factories, workers hardly ever touch the product because numerically controlled machines perform the work according to numerically coded instructions. The worker is no longer the source of any variability in the product because the machine will repeat the same instructions perfectly every time. In some cases these machines can operate untended for up to eight hours. Workers often write the programs for the machines and thus focus their attention on how a *procedure* behaves rather than how the *process* behaves. Workers using NC equipment must integrate knowledge of the process with knowledge of the product. NC equipment is used in metal cutting, plastic injection molding, robotic painting and welding, and so on.[25] CIM links multiple NC machines with automated material handling equipment to create an automated factory. In some cases, the factory is connected to computer-aided design equipment as well. Workers in a CIM factory have to understand procedures, their own stage of the production process, and how their stage links to other operations in the factory. In other words, they must have knowledge of the entire system.

It is tempting to suggest that all firms pursue CIM because jobs are clearly more interesting and challenging than in JIT, or even in craft production. Unfortunately, in some industries CIM is prohibitively expensive. For example, sewing operations are very difficult to automate; manual human labor is still required. Most industries seem to fit naturally with a particular type of manufacturing: sewing with scientific management, automotive assembly with JIT, metal cutting with CIM. Certain shifts are possible and indeed can provide competitive advantage, such as when, in the automotive industry, scientific management displaced craft production, and later JIT displaced scientific management. In the meantime, however, managers should seek to mitigate the onerous dimensions of each type of manufacture.

We have a final recommendation for managers in these factories. When work reverts to the daily tedium, managers should encourage workers to use their creativity to devise ways to make the jobs more interesting and intellectually stimulating. Instead of spending a half hour in team meetings each day discussing improvements to quality and ways to lower costs, workers could devote that time one day a week to generating new ideas for using their creativity. These employees may discover interesting new challenges. Some firms, for instance, encourage workers to participate in hiring, in training to become team leaders, or in visiting suppliers and customers.

Conclusion: Job Design and the Nature and Purpose of the Business

Work derives its dignity from the challenge of conceiving a task and then executing it; we best grow in knowledge and skill through the process of carrying out our own ideas. Where workers are challenged to execute not just the plans of managers and engineers, but also, in part, their own plans, they are far more likely to flourish at work. Work, as a fundamental opportunity for human flourishing, must be designed in such a way that it respects the worker's capacity for self-direction and for self-development.

Hence, it is quite fitting that this book on the nature and purpose of the business organization conclude with an essay on job design. As John XXIII put it, "if the whole structure and organization of an economic system is such as to compromise human dignity, to lessen a man's sense of responsibility or rob him of an opportunity for exercising personal initiative, then such a system, . . . is altogether unjust—no matter how much wealth it produces, or how justly and equitably such wealth is distributed."[26] While the firm ought to distribute justly the fruits of those who labor in the enterprise, as Jess Gates's essay proposes, if jobs that promote the development and preserve the humanity of those who do them are lacking, no other "good deed" of the organization can make up for that deficiency. Job design, then, is the acid test of the organization's pursuit of the principles and virtues that have been the focus of this book: justice, solidarity, subsidiarity, the common good, and, central to all of these, human development.

As the Catholic social tradition reiterates constantly, the basic principle on which any business enterprise should be built is that the organization of human work must reflect the nature and dignity of the human beings who do it. Apart from this informing purpose, there is a good chance that the job design programs we have mentioned will succumb to the "economistic" logic of managers who see employees as just one more factor of production. It will also confirm in employees one more time that "to manage" is merely "to use."

The reorganization of work along lines conducive to human development is dauntingly, achingly difficult. Business leaders who unite unrivaled business acumen with deep practical wisdom will have to show the way out of the poorly designed work which dominates the practice of our organizations, colors the thinking of management and labor alike, and cramps our expectations of working life. Only with real commitment to a purpose of business that drives us toward the growth of others, can we hope to rethink and rehumanize our workplaces.

Notes

1. For a more Thomistic and philosophical treatment of this issue, see James Murphy, "The Quest for a Balanced Appraisal of Work in Catholic Social Thought," in *Labor, Solidarity, and the Common Good,* ed. S.A. Cortright (Durham, N.C.: Carolina Academic Press, 2001).

2. See Juliet B. Schor, *The Overworked American* (New York: Basic Books, 1991), 32.

3. For Schor's data on aggregate working hours, and for evidence from Hewlett and Fuchs, see *The Overworked American,* 29 and 12–13.

4. Of course, one may ask, "If people choose to put in longer and longer hours, why not let them?" To begin with, many people do not always choose longer hours. Individual workers often have little say about the hours of work; many jobs do not come in a variety of hours. So long as there are more workers chasing jobs than jobs chasing workers (let us recall that this is the normal condition of capitalism), the hours of work will be set unilaterally by managers, giving workers a take-it-or-leave-it option. As Paul Samuelson noted: "In contrast with freedom in the spending of the money we earn, the modern industrial regime denies us a similar freedom in choosing the work routine by which we earn those dollars "(Samuelson, as cited in Schor, *The Overworked American,* 128). This has changed recently, especially in high-tech industries, where skilled workers are increasingly dictating conditions of employment.

5. John A. Ryan, as cited in ibid., 121.

6. For suggestions on how this market in free time might be created, see Schor, *The Overworked American,* 3 and 143.

7. See A. Fisher, R. Levering, and M. Moskowitz, "The 100 Best Companies to Work for in America," *Fortune,* January 12, 1998, 69–70.

8. Ibid., 69, 84–95.

9. See ibid. for these examples and many more.

10. See Schor, *The Overworked American,* 146–48.

11. Adam Smith, *The Wealth of Nations* (New York: Random House, 1937), 5.1. Smith goes on to contrast this grim portrait with the varied and more challenging occupations of men in simpler societies which "oblige every man to exert his capacity, and to invent expedients for removing difficulties which are continually occurring. . . . Every man has a considerable degree of knowledge, ingenuity, and invention."

12. John Rawls, *A Theory of Justice* (Cambridge: Belknap Press of Harvard University Press, 1971), 426.

13. John Paul II, *Laborem exercens,* 6. The translation is unfortunate: the word rendered "man" here is, of course, *homo*—"human being"—in the Latin original.

14. See Melvin Kohn, Carmi Schooler, et al., *Work and Personality* (Norwood, N.J.: Ablex Publishing, 1982), 304. As Kohn states, "Exercising

self-direction in work—doing work that is substantively complex, not being closely supervised, not working at routine tasks—is conducive to favorable evaluations of self, an open and flexible orientation to others, and effective intellectual functioning. . . . People thrive in meeting occupational challenges" (Melvin Kohn, "Unresolved Issues in the Relationship between Work and Personality," in *The Nature of Work*, ed. Kai Erikson [New Haven: Yale University Press, 1990], 42).

15. For details of this survey, see Harry Braverman, *Labor and Monopoly Capital* (New York: Monthly Review Press, 1974), 433n.

16. Jeremy Rifkin, *The End of Work* (New York: Putnam's, 1995), 5.

17. This is according to a 1982 survey by Daniel Yankelovich and John Immerwahr, cited in Robert Lane, *The Market Experience* (Cambridge: Cambridge University Press, 1991), 239–40.

18. Cited in Braverman, *Labor and Monopoly Capital,* 35.

19. Pius XI, *Quadragesimo anno,* 135.

20. Smith, *The Wealth of Nations,* 1.1. In this section we draw freely from James B. Murphy, *The Moral Economy of Labor: Aristotelian Themes in Economic Theory* (New Haven: Yale University Press, 1993), chapter 1.

21. See R. Jaikumar, "From Filing and Fitting to Flexible Manufacturing: A Study in the Evolution of Process Control," Division of Research, Harvard Business School, 1988.

22. There is enormous debate about whether Uddevalla would have succeeded if Volvo had continued operations for a few more years. See, for example, P.S. Adler, and R.E. Cole, "Designed for Learning: A Tale of Two Auto Plants," *Sloan Management Review* (Spring 1993): 85–94; J.P. Womack, D.T. Jones, and D. Roos, *The Machine That Changed the World: The Story of Lean Production* (New York: Harper Perennial, 1991); M. Maccoby, "Is There a Best Way to Build a Car?" *Harvard Business Review,* November–December 1997, 161–171; R. Milkman, *Farewell to the Factory: Auto Workers in the Late Twentieth Century* (Berkeley: University of California Press, 1997); and J. Rinehart, C. Huxley, and D. Robertson, *Just Another Car Factory? Lean Production and Its Discontents* (Ithaca, N.Y.: Cornell University Press, 1997).

23. See chapter 16 of E.A. Silver, D.F. Pyke, and R. Peterson, *Inventory Management and Production Planning and Scheduling,* 3d ed. (New York: John Wiley and Sons, 1998) for more on JIT.

24. See for example E. Zavadlav, J.O. McClain, and L.J. Thomas, "Self-Buffering, Self-Balancing, Self-Flushing Production Lines," *Management Science* 42, no. 8 (1996): 1151–64; and J.J. Bartholdi, L.A. Bunimovich, and D.D. Eisenstein, "Dynamics of 2- and 3-Worker 'Bucket Brigade' Production Lines," University of Chicago Working Paper, 1995.

25. This type of manufacture closely parallels cellular manufacturing as described in Helen J. Alford and Michael J. Naughton's chapter, "Job Design: Prudence and Subsidiarity in Operations," in *Managing As If Faith Mattered* (Notre Dame, Ind.: University of Notre Dame Press, 2001). Cellular manufacturing, however, can be implemented without high-technology NC machines.

26. John XXIII, *Mater et magistra,* 83.