

PART III

ENGINEERS, MANAGEMENT, AND ORGANIZATIONS

Professionals have to have autonomy. They cannot be controlled, supervised, or directed by the client. Decisions have to be entrusted to their knowledge and judgment. But it is the foundation of their autonomy, and indeed its rationale, that they see themselves as "affected with the client's interest."

Peter F. Drucker

Mankind cannot survive without technology. But unless technology becomes a true servant of man, the survival of mankind is in jeopardy. And if technology is to be the servant, then the engineer's paramount loyalty must be to society.

Victor Paschkis

PROFESSIONAL RESPONSIBILITY AND EMPLOYER AUTHORITY

The 1970 Clean Air Act requires car manufacturers to conduct 50,000-mile durability tests on new engines using only one tune-up. Test results on emissions must be reported to the Environmental Protection Agency (EPA), which decides whether the engines meet current pollution standards. In May 1972, top managers at Ford Motor Company were eagerly awaiting government approval of the test results they had submitted on the engines for 1973 Ford cars. They had every reason to be confident of the results they had submitted to EPA, which were based upon tests conducted by their own employees; their only concern was about meeting tight production schedules once EPA's approval was received.

Their confidence was shattered, however, when then Ford president Lee Iacocca received a memo from a specialist in the computer division. That computer specialist had been examining the computer tapes from the tests to review the effectiveness of his division in support of engine development. His memo identified numerous irregularities in the test records, showing unauthorized maintenance of which EPA was not notified. The memo also stated that when the specialist sought an explanation of the irregularities from the engine division he was urged to burn the computer tapes and forget the matter.

Intensive research into the matter by management quickly verified the information contained in the memo. Evidently, four "supervisory technical" employees who had conducted the original tests had ordered or engaged in over 300 acts of illegal maintenance on the test engines. Spark plugs and points had been replaced frequently, carburetors cleaned, and ignition tim-

ing repeatedly reset. These adjustments lowered the levels of pollutants emitted.

Within 3 days Mr. Iacocca revealed to EPA officials all he had learned about the tests and withdrew Ford's application for certification of four major types of engines. In spite of its full cooperation with EPA investigators, the company was fined \$7 million in criminal and civil fines for having conducted improper tests and issued false reports to the government. Because of the record size of the fines, Ford received damaging publicity in front-page newspaper articles (for example, in the *New York Times* and the *Los Angeles Times*, 14 Feb. 1973). It was also hurt by the costs of new tests that had to be conducted on an around-the-clock emergency basis and by having to delay production schedules (*Wall Street Journal*, 25 May and 31 May 1972).

Misguided Loyalty?

Nothing written about the Ford test scandal tells what motivated the Ford supervisors and other engineers and technicians involved. Possibly it was only a self-interested concern—a desire to make themselves look good by ensuring their engines would pass the qualifying tests. But it is equally possible that they were acting as loyal employees. Ford had been late in obtaining some government approvals the previous year, and perhaps the individuals believed—however mistakenly—that they were serving the company's best interests by avoiding such difficulties this year. Perhaps some of them were merely following orders from higher up to tamper with the engines. In any case, management was not particularly punitive: despite the staggering costs incurred, no one who had participated in rigging the tests was fired and the four supervisors were merely transferred to new positions.

This case suggests three points concerning the relationship between professional responsibility and loyalty to companies or employers. First, acting on professional commitments to the public can be a more effective way to serve a company than a mere willingness to do anything one sees as good for the company. Ford would have benefited much more from engineers committed to professional standards than it did by the misguided loyalty shown to it by its employees.

Second, it is clear from the example that loyalty to companies or their current owners should not be equated with merely obeying one's immediate supervisor. It would have shown a greater loyalty to Ford to act in a way consistent with the concerns of higher management, rather than in a manner consistent with the aims of an immediate supervisor.

Third, the case illustrates how an engineer might have professional obligations to both an employer and to the public that reinforce rather than contradict each other. Thus there need be *no general contrast* between the moral status of employees and professionals. In fact, obligations to the public and to one's employer often point in the same direction.

Nevertheless, we have also seen from other cases we have examined that

obligations to employers and to the public do not always straightforwardly coincide. Sometimes an engineer seeking to protect the public is overruled by top management for financial reasons. For example, in the DC-10 case, the director of product engineering was told by higher management that it would be too costly for his company to redesign an unsafe cabin floor and cargo door. At other times there are disagreements over technical matters, and engineers are told they must not push their own views further. This we saw illustrated in the case of space shuttle *Challenger*.

The relationship between being a responsible engineer, with obligations to the public, and being a loyal employee is a matter of some complexity. We will explore it first from the direction of professionalism, then from a study of employers' authority, and finally by discussing four topics: conflicts of interest, confidentiality, unionism, and white-collar crime.

PROFESSIONALISM

What is a professional? If we answer that it is someone who is a member of a profession, then what is a profession and how does one become a member of one? Our first concern in dealing with these questions is to understand why there is so much disagreement over how to answer them. A second concern is to sketch a conception of professionalism compatible with viewing employed engineers as professionals having obligations to both employers and the public.

Professions

In one of its senses, the word "profession" is used as a synonym for "job" or "occupation," and to be a professional at some activity means merely to earn one's living through it. Thus we speak of professional football and tennis players, as opposed to amateurs who do not draw an income from these sports. We also speak of professional sanitation workers, taxicab drivers, bartenders, and even mercenaries and killers.

But there is another sense of the word which rules out such examples. "Profession," in this new sense, can be applied only to certain occupations which meet special criteria. Generally the criteria include restrictions of the following sort:

- 1 The work involves exercising sophisticated skills, judgment, and discretion which is not entirely routine or susceptible to mechanization.
- 2 Preparation to engage in the work requires extensive formal education, including technical studies in one or more areas of systematic knowledge as well as broader humanistic studies. Generally, continuing education and updating of knowledge are also required.
- 3 Special societies and organizations controlled by members of the profession are allowed by the public to play a major role in setting standards for

admission to the profession, drafting codes of ethics, enforcing standards of conduct, and representing the profession before the public and the government.

4 The occupation serves some important aspect of the public good, as indicated in the codes of ethics. (For example, medicine is directed toward promoting health, law toward protecting the public's legal rights, and engineering toward promoting the public's health, safety, and welfare as they relate to technology.)

There are many debates over just which occupations meet these criteria. The traditional professions of medicine, law, teaching, and the ministry are cited as paradigm or clear-cut examples. So too are professions like engineering and business administration that have emerged more recently. Sanitation work, taxicab driving, and basketball are not counted because of the lack of required advanced education. Disagreements occur over occupations requiring intermediate amounts of formal training: advertising, realty, cosmetology, and some jobs in computer and medical technology.

Membership Criteria

Further disputes arise over how a person does or should become a member of an accepted profession. Such disputes often occur with respect to engineering. Each of the following has been proposed as a criterion for being an engineer or a "professional engineer" in the United States:

1 Earning a bachelor's degree in engineering at a school approved by the Accreditation Board for Engineering and Technology. (If applied in retrospect, this would rule out Leonardo da Vinci and Thomas Edison.)

2 Performing work commonly recognized as what engineers do. (This rules out many engineers who have become full-time managers, and also rules in some people who do not hold engineering degrees.)

3 Being officially registered and licensed as a "Professional Engineer" ("P.E."). Becoming registered typically includes (a) passing the Engineer-in-Training Examination or Professional Engineer Associate Examination during the senior year in engineering school, (b) working 4 to 5 years at responsible engineering, (c) passing a professional examination, (d) paying the requisite registration fees. (This rules out a large percentage of unregistered people holding bachelor's, master's, and doctoral degrees in engineering, many of whom work in education or manufacturing industries where they are exempt from registration.)

4 Acting in morally responsible ways while practicing engineering. (This rules out scoundrels, no matter how creative they may be in the practice of engineering.)

The words "profession" and "professional" have acquired positive emotional connotations and suggest a highly desirable status for occupations and

individuals. At least part of these connotations derive from the public importance of professional skills and knowledge, and also from the difficulty of acquiring them. Because of these factors, professionals are regarded as deserving high pay, prestige, and other social benefits. Social status is frequently enhanced by a title, such as Doctor or Reverend. In this respect some engineers in the United States, where engineering is often not considered on a par with medicine or the ministry, yearn for more of the open recognition accorded their counterparts in some other countries.

Persuasive Definitions

One could choose any one of the above mentioned criteria for what constitutes an engineer and claim, by assuming a particular value perspective, that it is the only correct definition. The somewhat loose ordinary cognitive meaning (defining criteria) could then be altered by making it more precise and narrow while retaining the ordinary *emotive meaning* (positive connotations). One would then be giving what is called a *persuasive definition* of the term "professional engineer": one used to espouse a particular value perspective (Stevenson, 1938; Cogan, 1955, 105).

As might be expected, such persuasive definitions occur frequently in disagreements over values, and there need be nothing improper about them. But they must be understood for what they are: techniques for altering attitudes, which by themselves do not constitute arguments. They should be critically examined, rather than passively allowed to influence us under the guise of being "truths, by definition." For they are not at all like definitions of triangles as three-sided planar figures or bachelors as adult, unmarried males.

For instance, if a psychologist defines intelligence as simply what certain psychological tests reveal, we should beware of the possible implications of bestowing so much significance on present-day techniques of psychological testing. Again, if medicine is defined as the science of health, and if health is defined as "a state of complete physical, mental and social well-being" (which is how the World Health Organization defines it), we should be wary of how these definitions encourage excessive expectations about what doctors and medical techniques can do.

Similarly, we need to be ready to assess the implications of accepting any given persuasive definition of "professional engineer." The attitudes and value perspectives embodied in such definitions concerning the desirable properties of professional engineers and how best to identify those properties need to be critically examined. For instance, those who seek to restrict the term "professional" to officially registered engineers will view the restriction as a way to ensure that stringent qualifications are met which will maximize benefits to the public. Those who are against this definition, however, may argue that it needlessly increases bureaucracy and is not an effective way of judging engineering qualifications.

Professionalism as Independence

There is one type of persuasive definition of professional engineer which is especially significant for our present purposes. That definition directly ties professionalism to independence and freedom from coercion. One version was given by Robert L. Whitelaw in an essay entitled, "The Professional Status of the American Engineer: A Bill of Rights." Whitelaw sharply contrasts bureaucratic submission to employers with the independence he sees as inherent in professionalism. In fact, he defines professionalism and employee status as logically incompatible: "...so long as the individual is looked upon as an employee rather than as a free artisan, to that extent there is no professional status" (Whitelaw, 1975, 37-38).

In Whitelaw's view, only consulting engineers qualify as professionals. The mass of engineers working as employees within corporate or governmental bureaucracies will not become professionals until they are protected by an engineering bill of rights ensuring the freedoms already enjoyed by self-employed engineers. Examples of these rights are "the right to refuse unethical activity without prejudice or loss of contract" and "the right to freedom from surveillance, psychological manipulation, and other job evaluation techniques."

According to Whitelaw's definition, one is not a professional engineer if one acts merely on the basis of an employer's orders in matters where the public good is concerned. Being a professional involves the freedom to act according to one's own judgment about what the correct course of any action should be. It is clear that Whitelaw is reacting sharply to what he views as the excessive domination of engineers by the authority of management. While many of his concerns are legitimate, and while his definition is a potent rhetorical instrument, we must ask whether his definition expresses too extreme a position.

Professionalism as Serving Employers

An opposite type of persuasive definition would treat loyal service to employers (or to clients, in the case of consulting engineers) as the heart of professionalism in engineering. Such a view is implied in Samuel Florman's widely discussed essay, "Moral Blueprints." Florman argues that "it is essential that professionals should serve" (Florman, 1978, 32). Rather than "filtering their everyday work through a sieve of ethical sensitivity," as Florman puts it, professionals have the task of meeting the expectations of their clients and employers. Professional restraints should be laws and government regulations rather than personal conscience.

Florman's essay is devoted to attacking the entry in the code of ethics of the former Engineers' Council for Professional Development which states, "Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties." His response is: "Engineers are obliged to bring integrity and competence to whatever work they under-

take. But they should not be counted upon to consider paramount the welfare of the human race" (Florman, 1978, 32).

It is fair to view Florman as expressing the dominant view of management concerning engineering professionalism. And many engineers would concur with the definition. Yet here again we must ask whether this conception of the professional obligations of engineers is one-sided.

An Intermediate Position

We will state, but not attempt to defend in detail, our own "persuasive definition" of professionalism in engineering. Our main concern in this section has been to emphasize that such definitions will generally be an outgrowth of one's perspective on the moral obligations of engineers. Accordingly, in discussions about the subject, attention should be focused on the obligations themselves rather than on how they are reflected in the criteria one espouses in defining the term "professional engineer."

Our view of the obligations of engineers involves a moderate position lying between the extremes represented by Florman and Whitelaw. For us, employed engineers have major moral obligations to both employers and to the public, and we think it a mistake to seize on either obligation as the essence of professionalism. A more useful definition would allow us to speak straightforwardly of "salaried professionals" (contra Whitelaw), and would also enable us to reject the view of professional obligations as essentially service to employers within the limits of law (contra Florman).

Accordingly, we favor viewing professional engineers as meeting two general criteria: (1) Attaining standards of achievement in either education, job performance, or creativity in engineering which distinguish them from engineering technicians and technologists. (We recognize that for legal and educational purposes the nature of those standards will have to be made more clear-cut and explicit.) (2) Accepting as part of their professional obligations at least the most basic moral responsibilities to the public as well as to their employers, clients, colleagues, and subordinates. This latter criterion lends to the term "professionalism" a moral dimension consistent with the fact that "unprofessional conduct" is often used as a synonym for "unethical conduct." Yet it makes no assumptions about which type of obligation is most central to engineering—an issue that should be debated independently of how to define what it means to be a professional engineer.

Obligations to the Public as Paramount

At this point let us set aside the issues that arise when we try to define professionalism and turn directly to the relationship between the two general obligations to the public and to employers. Should we agree that the obliga-

tion to protect the public health, safety, and welfare is *paramount*, as recent codes have stated?

In our view, yes, so long as "paramount" is understood in its colloquial sense to mean "chief in importance or deserving primary emphasis." We make this judgment against the background of a conspicuous reality: Most employers have enormous power compared with the engineers they employ. They have the power to fire or take other negative sanctions against individuals who fail to meet their obligations to the employer. And engineers have relatively little recourse at present when an employer does not support their efforts to meet their obligations to the public. Hence if "paramount" means "deserving most emphasis in the minds of engineers, engineering societies, and the wider community," then the obligation to the public deserves to be regarded as paramount.

"Paramount," however, can also be construed in a technical philosophical sense to mean that whenever the obligations to employers and the public come into conflict (creating a moral dilemma), the obligation to the public *always* takes precedence. Thus it can mean that, whenever these two *prima facie* duties conflict, one's actual duty—what one *ought* to do, all things considered—is always to meet one's public obligations.

We doubt that this technical sense of "paramount" is what drafters of the codes had in mind. In any case, it seems to us to be a dubious view if carried to its extreme. Consider the following case: A design group develops a new electronic circuit to be used in clock radios which would extend their average life from 5 to 7 years at a cost that would raise manufacturing expenses by only 1 percent. After presenting their arguments to top management, however, the latter reject the proposal as not being cost-effective. Does the design group's obligation to the public outweigh its employer's directives to drop further work on the circuit?

In this case it would undermine an employer's legitimate authority to say that engineers must subsume their obligations as employees to their obligations to the public. Of course the obligation to the public should override the obligation to the employer in cases where something of extreme importance is at stake for the public: generally where lives are seriously threatened, serious financial corruption is involved, or serious economic loss might result. Many instances of justified whistle-blowing fall into this category, as we shall argue in Chap. 6. But this does not mean that the first priority is *always* the public good whenever that good conflicts morally with an employer's good.

Engineers, in short, must weigh their obligations to the public, their employers, their colleagues, and others when conflicts between such obligations arise. A simple, exceptionless ordering of priorities is not always possible.

Study Questions

- 1 Comment on the following definitions, or partial definitions, of professionalism in engineering. In each case, do you agree that the passage presents something es-

sential to an understanding of professionalism? Is the definition a controversial persuasive definition with which you disagree? Why?

- a "Professionalism implies a certain set of attitudes. A professional analyzes problems from a base of knowledge in a specific area, in a manner which is objective and independent of self-interest and directed toward the best interests of his client. In fact, the professional's task is to know what is best for his client even if his client does not know himself" (Storch, 1971, 38).
 - b "A truly professional man will go beyond the call to duty. He will assume his just share of the responsibility to use his special knowledge to make his community, his state, and his nation a better place in which to live. He will give freely of his time, his energy, and his worldly goods to assist his fellow man and promote the welfare of his community. He will assume his full share of civic responsibility" (Simrall, 1963, 39).
 - c "If they mean to be professionals, engineers themselves will have to take moral responsibility for their work rather than unquestioningly accepting whatever orders come down to them from Government or employers" (Walters, 1973, 42).
 - d "A profession, in contradistinction to a trade...[is] a body of persons with learned knowledge having an ability to examine itself and its purposes; an ability to link its body of knowledge with other bodies of knowledge to achieve common purposes; the ability to defend dissent, not just within the society but dissent by its members in conflicts with their employer organizations or their government agencies or corporations; and above all the ability to pioneer new policies that are not brought into effect by market incentives" (Nader, 1972, 14).
- 2 Discuss under what circumstances you think engineers are justified in participating in the design and manufacture of products with built-in obsolescence. Such products wear out rapidly and cannot be repaired.

EMPLOYERS' AUTHORITY

Salaried engineers have obligations to respect their employers' legitimate authority. But what is the nature of this authority? How far should it be recognized by salaried professionals as being morally justified?

In order to address these questions we will begin with a discussion of how and why authority arises within institutions. Then several distinctions will be drawn which make clear why such authority is not automatically the same as moral authority.

Goals of Institutions

Engineers work within virtually all forms of modern organizations. These organizations vary enormously in the specific goals they are created and maintained to serve. Two general types are (1) service organizations, and (2) business, or profit-making, organizations (Drucker, 1973, 131).

Service institutions have as their primary purpose to provide selected services to the public or to other organizations of which they are parts. Universities provide education, hospitals give health care, court systems serve legal needs, professional societies serve professionals, and so on for churches, the

military and government, and "natural monopolies" like telephone and utility companies. They operate under the economic restraints of a budget allocated by supervising government agencies or based on their income from the services they provide.

Business, or profit-making, institutions are established primarily to produce income. The criterion for performance is taken by some to be maximum profits (Friedman, 1979, 192), and by others to be a reasonable return on investment. Still other observers will include making social contributions as well. As the necessary means to achieving the primary purpose of producing income, business institutions must of course provide some product or service which customers will purchase. Moreover, businesses must do so within the boundaries delimiting the public good set by the government, which grants the businesses the charters that allow them to operate. Thus a fuller specification of the purpose of profit-making institutions is to make a profit by providing a product or service which the public finds useful.

Both service and business organizations may take on further secondary goals. In order to meet their primary goals, they generally adopt the goals of survival and of maintaining adequate degrees of freedom from outside control (Galbraith, 1971, 170). In practice this latter goal often means resisting extensive government regulation.

Institutional Authority

In order to meet their institutional goals, organizational rules are created. Typically these rules attach specific duties to positions within the organization. The rules may also allow one person to assign duties to others. Thus, an *institutional duty* is any assigned task within an organization, whether the assignment is directly or indirectly rule-specified. Managerial tasks, for example, may be to allocate money or other resources, to make policy decisions or recommendations, or to oversee projects and issue directives to subordinates on particular topics.

The need for authority relationships in meeting organizational goals is clear. Decisions must be made in situations where allowing everyone to exercise unrestrained individual discretion would create chaos. Moreover, clear lines of authority provide a means for identifying areas of personal responsibility and accountability.

In order to enable people holding managerial positions to meet their institutional duties, the rules also assign them the requisite authority. This is *institutional authority*, since it is acquired, exercised, and defined within institutions. It may be defined as the *institutional right* given to a person to exercise power based on the resources of the institution (Pichler, 1974, 428).

Institutional rights (authority) and duties are for the most part two sides of the same coin, and they deal with precisely the same activities and functions. Project engineers, for example, have the institutional duty to ensure that the

projects they supervise are successfully completed, and they are given the institutional rights or authority necessary to carry out this duty. Obviously, too, these rights involve a certain amount of freedom or liberty: It would be self-defeating for an institution to assign tasks but to deny the freedom from interference necessary to perform them.

Institutional versus Expert Authority

It clearly benefits institutions to give authority to the individuals best qualified to serve the institution's goals in a given capacity. But in practice there is not always a perfect match between the authority granted and the qualifications needed to exercise it. Incompetence is found in all large institutions, and there is some truth in the cynical remark that in bureaucracies people tend to rise to their own level of incompetence.

Thus institutional authority should not be equated with expert authority. *Expert authority* is the possession of special knowledge, skill, or competence to perform some task or to give sound advice. In this sense, doctors are authorities on health and civil engineers are authorities on structures and transportation. One of the key competencies for management is leadership ability, which has its own kind of expert authority that has been called the "authority of leadership": the expertise to effectively direct others (Barnard, 1968, 173).

It is possible for engineers to have expert authority in matters for which they have little or no institutional authority to make decisions. Their institutional authority may extend no further than the right to provide management with analyses of possible ways to perform some technical task, after which they are restricted to following management's directives about which option to pursue.

Authority versus Power

Institutional authority must also be distinguished from power. Institutional authority typically carries with it an allotment of the resources needed to complete tasks. Yet ineffectual persons may not be able to summon the power which their position allows them to exercise. A manager, for example, who lacks the skills of leadership may be unable to inspire and encourage employees to produce in ways the institution requires, much in the way a conductor may fail with an orchestra.

Conversely, people who are especially effective may acquire great power or influence—power which goes well beyond the authority attached to the positions they hold. Charismatic leaders often have influence outside their domains of authority. And highly respected engineers of proven integrity may have power within an organization exceeding their explicit institutional rights.

Authority and Managerial Strategies

As we noted, institutional authority often gives one the prerogative to issue orders in a given area and to expect them to be complied with. But it would be a serious misconception to equate managing people with issuing orders and then standing on one's authority in demanding unquestioning obedience (McGregor, 1960).

To manage people is to guide and integrate their work, and there are many general approaches or strategies for doing so. One is the direct assertion of authority over a subordinate: "I'm in charge—obey or I'll fire you." But repeated use of this approach would be viewed negatively within business as an authoritarian abuse of authority. Other strategies include a heavy mixture of persuasion and rational argument. Some emphasize mutual decision making, or decision making based on full consultation with subordinates.

A consensus approach may be slower, but it is more effective and prudent in the long run. And in dealing with salaried professionals, it is more than prudent. A strictly authoritarian approach can easily lead to the demise of moral integrity among employees, with a resultant weakening of felt obligations vis-à-vis both employer and the public.

Morally Justified Authority

The preceding distinctions clear the way for making two observations. First, an employer may have the institutional authority to direct engineers to do something which is not morally justified. Second, engineers may have an institutional duty to obey a directive which is morally unjustified and which it is their moral duty, all things considered, to disobey.

To repeat: Institutional authority is the institutional right to exercise certain kinds of power, and this right is merely the liberty which the rules of the institution say a person has. Institutional duties are the duties specified by the rules of the institution, either directly as attached to offices and positions or indirectly as delegated by a superior (who in turn derives such authority from the rules of the institution). These rights and duties may be established as means to the end of meeting institutional goals. But they are not thereby moral rights and duties, or morally justified institutional rights and duties.

Before concluding that a specific act of exercising institutional authority is morally justified, we would need to know (1) whether the institutional goals are themselves morally permissible or morally desirable and (2) whether that act violates basic moral duties.

Engineers do take on some moral obligations to meet their institutional duties when they accept employment—but only so long as meeting those institutional duties is morally permissible. An employment contract can be viewed as a morally conditioned mutual promise. Promises to act immorally are either invalid or automatically overridden by moral considerations.

The relationship between *moral* rights and duties and *institutional* rights and duties is complex. Only a few further observations will be made here.

Recall that in earlier chapters we distinguished between general human moral rights and special moral rights. Obviously human rights and institutional rights cannot be equated. By definition, human rights (such as the rights to life, liberty, and the pursuit of happiness) are possessed by virtue of being a person, not by virtue of being a member of an institution.

However, some institutional rights and duties can be equated with special moral rights and duties—namely, those which are morally justified. For example, through employment agreements employees acquire a special institutional duty to protect proprietary information, and employers have an institutional right to require that employees do so. And to the extent that those duties and rights can be morally justified, either through some argument deriving from the employment contract itself or because of other, independent considerations, they are also moral duties and rights.

Accepting and Obeying Authority

Let us now shift perspective from the authority of employers to the recognition of that authority by their employees. Employees recognize their employer's authority when for the most part they accept the guidance and obey the directives issued by the employer having to do with the areas of activity covered by the employer's institutional authority. There are exceptions, since it is possible in special cases to recognize someone's authority but to disobey an order on moral grounds. But our present concern is to obtain a clearer idea of what accepting authority under normal conditions should and should not involve.

In his classic text, *Administrative Behavior*, Herbert Simon states: "A subordinate is said to accept authority whenever he permits his behavior to be guided by the decision of a superior, without independently examining the merits of that decision" (Simon, 1976, 11). In general, authority relationships are "all situations where suggestions are accepted without any critical review or consideration" (Simon, 1976, 128). Again, "the characteristic which distinguishes authority from other kinds of influence is... that a subordinate holds in abeyance his own critical faculties for choosing between alternatives and uses the formal criterion of the receipt of a command or signal as his basis for choice" (Simon, 1976, 127). In Simon's view, the reasoning of subordinates in their role as subordinates is at most aimed at anticipating commands by asking themselves how their superiors would wish them to behave in a given situation.

Simon notes that all employees place limits on the "zone of acceptance" in which they are willing to accept their employer's authority. But within that zone, an "individual, relaxing his own critical faculties, permits the communicated decision of another person to guide his own choice" (Simon, 1976, 151).

Simon provides an influential picture of what obedience involves. But its limitations must be kept in mind. Employees are generally not inclined to

make an issue of every incident of questionable morality, sometimes because of moral inertia, at other times out of a reluctance to generate an overload of complaints or a willingness to give their employer a certain amount of leeway within which to operate, or even because of a wish to save the strongest arguments and the possible risk of losing their job for the most serious infractions. While this automatic obedience within the "zone of acceptance" of an employer's authority is understandable, it also carries with it the risk of becoming blind and unthinking in regard to moral matters. The problem which arises then is that the boundaries of tolerance are easily expanded and rationalized when expediency so dictates. Thus the size of any person's "zone of acceptance" could become a measure of the lack of that individual's moral integrity. To avoid this problem, employees must be reflective concerning the justified extent of their "zone of acceptance" of employers' authority. In a sense, then, they should never suspend their critical review of employers' directives in the manner Simon describes.

From a different direction, therefore, we have reached the same conclusion we came to in the last section: As professionals, engineers have obligations to accept their employers' institutional authority. But this is not an obligation to obey blindly. Professional autonomy entails exercising independent judgment, even though it does not mean disregarding legitimate directives. The basic moral task of salaried engineers is to be aware of their obligations to obey employers on the one hand and to protect and serve the public and clients on the other. Most of the time there is no conflict between the two. But when, occasionally, genuine conflict arises, it must be resolved by the exercise of an autonomous moral judgment.

Loyalty

Let us return for a moment to the topic of loyalty to company and employer, a topic mentioned in connection with the Ford case at the beginning of this chapter. The word "loyalty" suggests something more than merely recognizing and accepting the authority of the employer. It implies, at least in ordinary language, doing so from certain kinds of motives. People who detest their employers and companies and who obey grudgingly and spitefully are not considered loyal. A loyal person shows at least some degree of genuine concern in serving the interests of those to whom she or he is loyal.

Actually there are two different concepts of loyalty. According to the first, to be loyal and faithful is to seek to meet one's moral duties to a person or organization, and to do so willingly, with an attitude of devotion and personal attachment and identification (Ladd, 1967, 98). In this sense loyalty is an inherently good thing. Indeed, it is a moral virtue.

According to the second concept, by contrast, loyalty is not automatically a good thing. Here, to be loyal and faithful means to be devoted and obedient to or zealously supportive of a cause, person, or organization, but not necessarily out of (nor in a way restricted by) moral duty. People loyal in this

sense try to promote the interests of whatever or whomever they are loyal to and they do so out of genuine concern. But whether it is good or obligatory to be loyal in this way depends upon the specific person, organization, or cause the loyalty is directed toward, and upon the circumstances in which the loyalty is displayed. There is a moral obligation *not* to act loyally in situations where violations of important moral duties could occur (Baron, 1984).

Hence loyalty to one's employer in this second sense can be misguided in two ways: (1) by being based on a mistake about what is good for one's company (as in the Ford Motor case opening this chapter), and (2) by failing to be in accord with duties owed to other people.

When codes of ethics state that engineers ought to be loyal to employers, or that they should act as their employer's or client's "faithful agents or trustees," the word is generally meant in its moral sense, as is suggested by the subheadings under the injunction to be a faithful agent or trustee. Typically those subheadings list specific moral duties: to avoid conflicts of interest, to inform employers of any possible conflicts of interest, to protect confidential information, to be honest in making estimates, to admit one's errors, and so on.

Yet it is important to bear in mind the possible ambiguity in speaking of loyalty. A call for loyalty to a company may be intended as more than a call for meeting one's moral obligations, and may involve the second concept of loyalty. It can be a tacit urging of close emotional identification with, and personal commitment to, the company's good. Urging loyalty to an employer can even mean recommending unquestioning obedience and devotion to the employer.

Loyalty and faithfulness in this second sense can be very valuable in creating a climate of mutual concern and commitment to shared goals among members of an organization. Such loyalty can add a human and personal dimension to the workplace, as well as aid in meeting the organization's goals. Yet it also has the potential in some situations of leading employees to disregard their wider moral obligations. For it can encourage the uncritical attitude that whatever is good for one's company is automatically good for the public.

Study Questions

1 Consider the following series of events:

An applicant for employment in a number of companies accepted employment with Company X, knowing that he preferred employment in Company Y. He did not get an offer from Company Y until after he had worked for Company X for three months. He then changed to Company Y, and after several months there he discovered that employment conditions were not as good as they were in Company X. He then applied at Company X for re-employment (Alger, Christensen, and Olmsted, 1965, 219).

Did the person in the case fail to act loyally to Company Y? In answering this question, distinguish and discuss both concepts of loyalty mentioned in this section. Touch also upon the element of duration of service as it may relate to loyalty.

- 2 During a 1973 CBS interview, a chief executive of Phillips Petroleum was asked what Phillips sought in prospective employees (Baron, 1984, 1). The executive stated that loyalty was by far the most important feature sought. He went on to explain that in his view loyalty meant buying Phillips's products rather than those of competitors, voting in local, state, and national elections in favor of policies that would benefit Phillips, and staying to work for Phillips unless moving became unavoidable. (The wives of prospective male employees were screened to see if they had careers which might interfere with their husbands staying at Phillips.) Did the authority of the executives at Phillips morally justify the call for loyalty of this sort? Which of the two senses of "loyalty" do you think the Phillips executive had in mind?
- 3 The moral complexities related to obeying authority arise in most contexts where authority is needed for meeting specific goals of a group. In this connection, discuss any analogies or dissimilarities you see between the obligations of employed professionals to obey employers and accept their authority and (a) professional baseball players obeying umpires, especially in cases where the umpire makes a bad call; (b) children respecting their parents' authority; (c) soldiers on a battlefield obeying their commanders; (d) college students recognizing their professor's authority to direct a class; (e) nurses obeying doctors' orders and the directives of hospital administrators; (f) musicians obeying a conductor. Which of these contexts has the closest analogies to why employees generally ought, and perhaps occasionally ought not, to obey their employers? In presenting your answer consider some examples where those in authority make an incorrect decision or issue a poor directive.
- 4 How can the concept of employees' loyalty to employers be upheld in the case of a company which falls into one or more of the following categories: (a) rapidly expands its work force—including engineers—when its business is good, but equally rapidly lays off employees when business begins to drop; (b) is bought out by a conglomerate with headquarters in a distant city and with more apparent interest in the acquired company's profit-making potential than its products; (c) is owned by shareholders who buy or sell shares at a moment's notice, depending on the daily stock market report.

CONFLICTS OF INTEREST

Engineers are expected to avoid conflicts of interest and to protect confidential information. Traditionally these two obligations have been given prominence in engineering codes of ethics, in management policy statements, and in the law. Indeed, next to following legitimate directives, they are probably the most emphasized aspects of loyalty to employers and companies. This section will focus on conflicts of interests, and the next section on confidentiality.

Definition

In a wide sense, conflicts of interest arise whenever people or groups have interests which if pursued could keep them from meeting at least one of their

obligations. We are concerned here with the obligations of employees to serve the interests of their employers or companies. Thus we will mean by "employee conflicts of interest" any situation where employees have an interest which if pursued might keep them from meeting their obligations to serve the interests of their employers or companies.

Sometimes such an interest involves serving in some other professional role—say, as a consultant for a competitor's company. Other times it is a more personal interest, such as making substantial private investments in a competitor's company.

These side interests are generally understood to threaten the fulfillment of employer-related obligations in one main way: They have the potential to deflect or distort the judgment of at least some people who find themselves in that type of situation. Thus an alternative definition of employee conflicts of interest is the following: Situations in which employees have side interests substantial enough potentially to affect their independent judgment, or the independent judgment of a typical person in their situation, in serving their company's interests. The qualification concerning "a typical person" is necessary. There might be conclusive evidence that the actual people involved would never allow a side interest to affect their judgment. But they could still be said to be in a conflict of interest situation.

Being in such a situation is not merely being confronted with conflicting interests (Margolis, 1979, 361). A student, for example, may have interests in excelling on four final exams. She believes, however, that there is time to study adequately for only three of them, and so she must choose which interest not to pursue. Or an investor may strongly desire to invest in two stocks but have sufficient funds for investment in only one. In these cases "conflicting interests" means a person has two or more desires which cannot all be satisfied given the circumstances. But there is no suggestion that it is morally wrong or problematic to try pursuing them all. By contrast, in conflicts of interest it is often physically or economically possible to pursue all of the conflicting interests, but it is morally problematic whether one should do so.

Conflicts of interest should also be distinguished from moral dilemmas, even though in some situations both are involved. Moral dilemmas occur when two or more moral obligations, rights, or ideals come into conflict and not all of them can be met. By contrast, it is often possible for an employee caught in a conflict of interest to pursue both the obligation to the employer and the side interest.

Examples

A wide variety of circumstances might arise which create conflicts of interest for employees. One type already mentioned is having an interest in a competitor's business. This might involve actually working for the competitor as

an employee or consultant. Or it might involve partial ownership or substantial stockholdings in the competitor's business.

A variation on this type of situation is when engineers prepare to leave a corporation to form their own competing businesses. It would be a clear conflict of interest if they sought to lure customers away from their current employers while still working for them.

A second important category involves using "inside" information to gain an advantage or set up a business opportunity for oneself, one's family, or one's friends. Thus, for example, engineers might tell their friends about their corporation's plans for a merger which will greatly improve the worth of another company's stock. In doing so, they give those friends an edge on an investment promising high returns. In general, the use of any company secrets by employees to secure a personal gain is felt to threaten the interests of the company the employees are supposed to serve and thus to constitute a conflict of interest.

A third typical variety arises when employees benefit from personal involvements with suppliers, subcontractors, or customers. An obvious example is accepting bribes directly intended to influence judgment. Bribes may be in the form of cash, gifts, loans, services, trips, or entertainment. Another blatant example is working for a subcontractor or supplier who deals with one's corporation. Conflicts of interest also arise when one holds substantial stock or other investments in a firm with which one's company does business.

Sometimes it is difficult to determine just when conflicts of interest exist. Does holding a few shares of stock in a company one has occasional dealings with constitute a conflict of interest? How about occasional luncheons paid for by vendors giving sales presentations? Or those free pens and bottles of wine from salespersons? What about a gift one believes is based on friendship rather than intended to influence one's judgment?

The guidelines for use with the fundamental canons of ethics of the Accreditation Board for Engineering and Technology (ABET) seems to recommend a hard line on such gratuities: "Engineers shall not solicit nor accept gratuities, directly or indirectly, from contractors, their agents, or other parties dealing with their clients or employers in connection with work for which they are responsible" (Sec. 4-e).

Yet most employers would consider this position excessive. Company policies generally ban any gratuities which have more than "nominal" value, or which have any realistic potential for biasing judgment. In part the specific criteria for "nominal" value will be what is widely and openly accepted as normal business practice. In part it will be assessed by a person's own awareness of what might influence his or her judgment. And in part it must be weighed according to how others might perceive (or misperceive) the gratuities. Companies also typically formulate policies stating what is a nonnominal gift from a salesperson: for example, an item worth more than \$10, or items totaling over \$30 per year.

Moral Status of Conflicts of Interest

There are many other kinds of conflicts of interest we could mention. For example, there is taking additional outside employment—moonlighting—in situations where it harms on-job performance (Reed, 1970, 19–23). And there are cases involving confidential information, to be discussed in the next section. Conflicts of interest can arise in innumerable ways, and with many degrees of subtlety. But let us now ask the following: What is wrong with employees having conflicts of interest?

Most of the answer is obvious from our definition: Employee conflicts of interest occur when employees have interests which if pursued could keep them from meeting their obligations to serve the interests of the company for which they work. Such conflicts of interest should be avoided because they threaten to prevent one from fully meeting those obligations.

More than this, however, needs to be said. Why should mere threats of possible harm always be condemned? Suppose that substantial good might sometimes result from pursuing a conflict of interest?

In fact it is not always unethical to pursue conflicts of interest! In practice some conflicts are unavoidable, or even acceptable. One illustration of this is how the government allows employees of aircraft manufacturers, like Boeing or McDonnell Douglas, to serve as government inspectors for the Federal Aviation Agency (FAA). The FAA is charged with regulating airplane manufacturers and making objective safety and quality inspections of the airplanes they build. Naturally the two roles of government inspector and employee of the manufacturer being inspected could lead to a conflict of interest and biased judgments. Yet with careful screening of inspectors, the likelihood of such bias is said to be outweighed by the practical necessities of airplane inspection. The options would be to greatly increase the number of nonindustry government workers (at great expense to taxpayers) or to do without government inspection altogether (putting public safety at risk).

Where conflicts of interest are unavoidable or reasonable, employees are still obligated to inform their employers and obtain an approval. This suggests a fuller answer to why conflicts of interest are generally prohibited: The professional obligation to employers is (1) very important in that it overrides in the vast majority of cases any appeal to self-interest on the job and (2) easily threatened by self-interest (given human nature) in a way which warrants especially strong safeguards to ensure that it is fulfilled by employees.

As a final point, we should note that even the appearance of seeking a personal profit at the expense of one's employer is considered unethical since the appearance of wrongdoing can harm a corporation as much as any actual biasing that might result from such practices. For example, using inside information to gain a personal advantage for oneself or one's family may not directly hurt a company—indeed, it directly harms only those who are thereby denied a fair opportunity to compete for the advantage. But if such

activities become generally known, the company's public image can be hurt—a state of affairs no employer wants to see.

Study Questions

- 1 "Facts: Engineer Doe is employed on a full-time basis by a radio broadcast equipment manufacturer as a sales representative. In addition, Doe performs consulting engineering services to organizations in the radio broadcast field, including analysis of their technical problems and, when required, recommendation of certain radio broadcast equipment as may be needed. Doe's engineering reports to his clients are prepared in form for filing with the appropriate governmental body having jurisdiction over radio broadcast facilities. In some cases Doe's engineering reports recommend the use of broadcast equipment manufactured by his employer.
"Question: May Doe ethically provide consulting services as described?" (*NSPE Opinions of the Board of Ethical Review*, Case No. 75.10)
- 2 "Henry is in a position to influence the selection of suppliers for the large volume of equipment that his firm purchases each year.
"At Christmas time, he usually receives small tokens from several salesmen, ranging from inexpensive ballpoint pens to a bottle of liquor. This year, however, one salesman sends an expensive briefcase stamped with Henry's initials" (Kohn and Hughson, 1980, 104).
Should Henry accept the gift? Should he take any further course of action?
- 3 "You were an engineer in partnership with Richard Jones. On May 10th, you sold your interest in the partnership to Jones and a day later accepted appointment as county director of public works. A few days later (and quite to your surprise) Jones sold your former firm to Octopus Enterprises, Inc., and became an officer of the corporation. It is now May 20th. You have tentatively decided to award an important engineering contract to Octopus. Would there be anything wrong if you did?" (Wells, Jones, Davis, 1986, 44; based on *NSPE Opinions of the Board of Ethical Review*, Case No. 77.9)
Compare and contrast this case with the case of Spiro Agnew described at the beginning of Chap. 2.
- 4 Read the case study at the beginning of Chap. 6. Was Brown and Root Corporation caught in a conflict of interest by being both the original designer of the road and the subsequent overseer of construction? If so, was the conflict permissible?

CONFIDENTIALITY

Many instances of failing to protect confidential information qualify as conflicts of interest. Nevertheless, the necessity of protecting such information is a distinct obligation of engineers and important in its own right. Indeed, keeping confidences is one of the most central and widely acknowledged duties of any professional. Defense attorneys must keep information clients tell them confidential, doctors and counselors must keep information on their patients confidential, and so too employed engineers must keep privileged information about their companies and their clients confidential.

Definition

What sort of information are engineers obligated to keep confidential? Actually, two questions are involved here. First, what is meant by the term "confidential information?" Second, exactly how can we identify what data should be kept confidential?

The first question is easier to answer. *Confidential information* is information which prima facie ought to be kept secret. "Kept secret" is a relational expression. It always makes sense to ask, "Secret with respect to whom?" In the case of some government organizations, such as the FBI and CIA, highly elaborate systems for classifying information have been developed that identify which individuals and groups may have access to what information. Within other governmental agencies and private companies, engineers and other employees are usually expected to withhold information labeled "confidential" from unauthorized people both inside and outside the organization.

The second question, which concerns the criteria for identifying what information should be treated as confidential, is somewhat more difficult to answer. One criterion is suggested in the code of ethics of the Accrediting Board for Engineering and Technology: "Engineers shall treat information coming to them in the course of their assignments as confidential" (Sec. 4-i). But this is too broad. Some of the information acquired on assignments is routine and widely known. For example, it may be knowledge about new company facilities or plans which is readily available to anyone. Or while working on a project an engineer may become familiar with technical processes known generally throughout the industry.

A different criterion would identify any information which if it became known would cause harm to the corporation or client. Yet there are always questions about just what information would produce that result. To give a precise answer one would need the talents of a fortune-teller.

Most businesses tacitly adopt yet another criterion: Confidential information is any information which the employer would like to have kept secret in order to compete effectively against business rivals. Often this is understood to be any data concerning the company's business or technical processes which are not already public knowledge. While this criterion is somewhat vague, it clearly points to the employer as the main source of the decision as to what information is to be treated as confidential. It is the criterion we will adopt.

Related Terms

Several related terms need to be distinguished. *Privileged information* is an expression often used as a synonym for "confidential information." Literally it means "available only on the basis of special privilege," such as the privilege accorded an employee working on a special assignment. It covers informa-

tion which has not yet become public or widely known within an organization.

Proprietary information is information which a company owns or is the proprietor of. This term is used primarily in a legal sense, just as "property" and "ownership" are ideas carefully defined by law. Normally it refers to new knowledge generated within the organization which can be legally protected from use by others.

A rough synonym for "proprietary information" is "trade secrets." A *trade secret* can be virtually any type of information which has not become public and which an employer has taken steps to keep secret. It may be data about designs and technical processes, organization of plant facilities, quality control procedures, customer lists, business plans, and so on (Popper, 1980, 101). Trade secrets are given limited legal protection against employee abuse. They are protected by common law—law generated by previous court rulings—rather than by statutes passed legislatively. An employer can sue employees for divulging trade secrets, or even for planning to do so. To win such a case, the employer must be able to prove the information had been or is being actively protected (for example, by showing it was or is available only to special employees for specific purposes, that contracts require subcontractors to keep the data secret, and so forth).

Patents differ from trade secrets. Patents legally protect specific products from being manufactured and sold by competitors without the express permission of the patent holder. Trade secrets have no such protection. A corporation may learn about a competitor's trade secrets through legal means—for instance, "reverse engineering," in which an unknown design or process can be traced out by analyzing the final product. But patents do have the drawback of being public and thus allowing competitors an easy way of working around them by finding alternative designs. Also, patents can be held for only 17 years, whereas trade secrets, so long as they can be kept secret, are under no time restrictions.

Patents are protected by statute laws passed in order to provide incentives for creativity (Vaughn, 1977, 34). In effect they give the patent holder the reward of a legally protected monopoly. By contrast, the legal protection accorded trade secrets is limited to upholding relationships of confidentiality and trust.

Moral Basis of the Confidentiality Obligation

Upon what moral basis does the confidentiality obligation rest, with its wide scope and obvious importance? Specifically, why are employers allowed to determine what information is to be treated as confidential? And what are the moral limits or restrictions on the confidentiality obligations of employees?

The major ethical theories can be applied to answer these questions. Advocates of every theory would probably agree that employers have some

moral and institutional rights to decide what information relating to their organizations can be released publicly. They acquire these rights as part of their charge to protect the interests of their organizations—whether those interests be a company's competitive edge (in the case of profit-making institutions) or the safety and well-being of clients or consumers. In addition, in the case of information like trade secrets developed by the company, there can be a right of ownership of the intellectual property (Schwarze). But different ethical theories will justify the rights differently and will also differ in the limits they place on them.

Briefly, *rights ethicists* will appeal to more basic considerations: for example, the right of stockholders to have management pursue a course consistent with their own best interests and the general rights of property ownership. This right, in turn, might be grounded in the fundamental moral right of the stockholders to pursue their legitimate interests within a socially accepted free enterprise system. However, the right of employers to establish what information should be treated as confidential will be limited by other legitimate moral rights: Minimally, no employer has a right to prevent engineers from blowing the whistle in cases where public knowledge of information would save human lives and thereby protect the rights of people to live.

Duty ethicists will emphasize the basic duties of both employers and employees to maintain the trust placed in them at the time they committed themselves to an employment agreement, a commitment that is understood to extend beyond the time of actual employment. They may also appeal to general duties not to abuse the property of others. Such duties, though, can be overridden by others, such as the duty to protect innocent lives, that might occasionally require whistle-blowing.

Utilitarians will view the authority of employers to determine the rules governing confidentiality as justified to the extent that it produces the most good for the greatest number of people. What this extent might be will depend on the particular theory of goodness subscribed to and the means required in any given situation to produce the most good. *Act-utilitarians* will focus on each instance where an employer decides on what is to count as confidential information. Is that act the most beneficial for everyone affected by it? *Rule-utilitarians*, by contrast, will emphasize the general benefits that result from having rules to protect confidential information. For example, investors' profits benefit from guarding trade secrets from competitors, and all society benefits from a system of limited protection of secrets to the extent that it stimulates creation of alternative products. The limits of the confidentiality obligation for utilitarians will depend on when acts of or rules for keeping information confidential do not produce the best consequences.

Confidentiality and Changing Jobs

The obligation to protect confidential information does not cease when employees change jobs. If it did, it would be impossible to protect such infor-

mation. Former employees would quickly divulge it to their new employers, or perhaps for a price sell it to competitors of their former employers. Thus the relationship of trust between employer and employee in regard to confidentiality continues beyond the formal period of employment. Unless the employer gives consent, former employees are barred indefinitely from revealing trade secrets. This provides a clear illustration of the way in which the professional integrity of engineers involves much more than mere loyalty to one's present employer.

Yet thorny problems arise in this area. Many engineers value professional advancement more than long-term ties with any one company and so change jobs frequently. Engineers in research and development are especially likely to have high rates of job turnover. They are also the people most likely to be exposed to important new trade secrets. Moreover, when they transfer into new companies they frequently do the same kind of work as before—precisely the type of situation in which trade secrets of their old companies may have relevance.

Donald Wohlgemuth and B.F. Goodrich Consider, for example, the case of Donald Wohlgemuth, a chemical engineer who at one time was manager of B.F. Goodrich's space suit division (Baram, 1968, 208). Technology for space suits was undergoing rapid development, with several companies competing for government contracts. Dissatisfied with his salary and the research facilities at B.F. Goodrich, Wohlgemuth negotiated a new job with International Latex Corporation as manager of engineering for industrial products. International Latex had just received a large government subcontract for developing the Apollo astronauts' space suits, and that was one of the programs Wohlgemuth would manage.

The confidentiality obligation required that Wohlgemuth not reveal any trade secrets of Goodrich to his new employer. But this was easier said than done. Of course it is possible for employees in his situation to refrain from explicitly stating processes, formulas, and material specifications. Yet in exercising their general skills and knowledge, it is virtually inevitable that some unintended "leaks" will occur. An engineer's knowledge base generates an intuitive sense of what designs will or will not work, and trade secrets form part of this knowledge base. To fully protect the secrets of an old employer on a new job would thus virtually require that part of the engineer's brain be destroyed—a solution no one would recommend on moral grounds!

Is it perhaps unethical, then, for employees to make job changes in cases where unintentional revelations of confidential information are a possibility? Some companies have contended that it is. Goodrich, for example, charged Wohlgemuth with being unethical in taking the job with International Latex. Goodrich also went to court seeking a restraining order to prevent him from working for International Latex or any other company which developed space suits. The Ohio Court of Appeals refused to issue such an order, al-

though it did issue an injunction prohibiting Wohlgenuth from revealing any Goodrich trade secrets. Their reasoning was that while Goodrich had a right to have trade secrets kept confidential, it had to be balanced against Wohlgenuth's personal right to seek career advancement. And this would seem to be the correct moral verdict as well.

Management Policies

What might be done to recognize the legitimate personal interests and rights of engineers and other employees while also recognizing the rights of employers in this area? And how can obligations to maintain confidences of former employers be properly balanced against obligations to faithfully serve the interests of new employers? There are no simple answers to these questions. Difficult dilemmas will always arise which call for sensitive and creative moral judgment. But while neither Congress nor the states have found it wise to pass strict legislation in this complicated area, some general management policies are being explored (Baram, 1968, 212-215).

One approach is to use employment contracts that place special restrictions on future employment. Traditionally those restrictions have centered on geographical location of future employers, length of time after leaving the present employer before one can engage in certain kinds of work, and the type of work it is permissible to do for future employers. Thus Goodrich might have required as a condition of employment that Wohlgenuth sign an agreement that if he sought work elsewhere he would not work on space suit projects for a competitor in the United States for 5 years after leaving Goodrich.

Yet such contracts are hardly agreements between equals, and they threaten the right of individuals to pursue their careers freely. For this reason the courts have tended not to recognize such contracts as binding, although they do uphold contractual agreements forbidding disclosure of trade secrets.

A different type of employment contract is perhaps not so threatening to employee rights in that it offers positive benefits in exchange for the restrictions it places on future employment. Consider a company which normally does not have a portable pension plan. It might offer such a plan to an engineer in exchange for an agreement not to work for a competitor on certain kinds of projects for a certain number of years after leaving the company. Or another clause might offer an employee a special postemployment annual consulting fee for several years on the condition that he or she not work for a direct competitor during that period.

Other tactics aside from employment contract provisions have been attempted by various companies. One is to place tighter controls on the internal flow of information by restricting access to trade secrets except where absolutely essential. The drawback to this approach is that it may create an atmo-

sphere of distrust in the workplace. It might also stifle creativity by lessening the knowledge base of engineers involved in research and development.

There have been unwritten agreements among competing corporations not to hire one another's more important employees. But the problem here is that when such practices become widespread in a given industry, some of the best engineers may be turned away to other fields offering more job options.

One potential solution is for employers to help generate a sense of professional responsibility among their staff that reaches beyond merely obeying the directives of current employers. Engineers can then develop a real sensitivity to the moral conflicts they may be exposed to by making certain job changes. They can arrive at a greater appreciation of why trade secrets are important in a competitive system and learn to take the steps necessary to protect them. In this way professional concerns and employee loyalty can become intertwined and reinforce each other.

Study Questions

1 Consider the following example:

Who Owns Your Knowledge? Ken is a process engineer for Stardust Chemical Corp., and he has signed a secrecy agreement with the firm that prohibits his divulging information that the company considers proprietary.

Stardust has developed an adaptation of a standard piece of equipment that makes it highly efficient for cooling a viscous plastics slurry. (Stardust decides not to patent the idea but to keep it as a trade secret.)

Eventually, Ken leaves Stardust and goes to work for a candy-processing company that is not in any way in competition. He soon realizes that a modification similar to Stardust's trade secret could be applied to a different machine used for cooling fudge, and at once has the change made (Kohn and Hughson, 1980, 102).

Has Ken acted unethically? Defend your view.

2 Answer the following questions asked by Philip L. Alger, N. A. Christensen, and Sterling P. Olmsted in their book *Ethical Problems in Engineering*:

If an engineer has been unjustly discharged, must he keep confidential in later employment the trade secrets of his original employers? In general, is it wise to follow the doctrine of an "eye for an eye and a tooth for a tooth"? (Alger, Christensen, and Olmsted, 1965, 111)

3 Alger, Christensen, and Olmsted also give the following example:

Client A solicits competitive quotations of the design and construction of a chemical plant facility. All the bidders are required to furnish as a part of their proposals the processing scheme planned to produce the specified final products. The process generally is one which has been in common use for several years. All of the quotations are generally similar in most respects from the standpoint of technology.

Contractor X submits the highest-price quotation. He includes in his proposals,

however, a unique approach to a portion of the processing scheme. Yields are indicated to be better than current practice, and quality improvement is apparent. A quick laboratory check indicates that the innovation is practicable.

Client A then calls on Contractor Z, the low bidder, and asks him to evaluate and bid on the alternate scheme conceived by Contractor X. Contractor Z is not told the source of alternate design. Client A makes no representation in his quotation request that replies will be held in confidence.

Is Client A justified in his procedure? (Alger, Christensen, and Olmsted, 1965, 177)

- 4 American Potash and Chemical Corporation advertised for a chemical engineer having industrial experience with titanium oxide. It succeeded in hiring an engineer who had formerly supervised E. I. Du Pont de Nemours and Company's production of titanium oxide. Du Pont went to court and succeeded in obtaining an injunction prohibiting the engineer from working on American Potash's titanium oxide projects. The reason given for the injunction was that it would be inevitable that the engineer would disclose some of du Pont's trade secrets (Carter, 1969, 54). Defend your view as to whether the court injunction was morally warranted or not.

UNIONISM

Is it possible for an engineer to be a professional, dedicated to the highest ethical standards of professional conduct, while simultaneously being a member and supporter of a union? The question, we feel, is too complex to warrant a simple answer. Before answering it we would need to know what kind of union and union activities are at issue. Lacking this information, the answer would seem to be: sometimes yes and sometimes no.

Yet many observers have argued that the ethical aspects of professionalism in engineering are inherently inconsistent with unionism—that is, with union ideology and practice. In *Engineers and their Professions*, for example, John Kemper writes:

There is little doubt that unionism and professionalism are incompatible. Professionalism holds that the interests of society and of the client (or employer) are paramount. Unions are collective bargaining agents that sometimes place the economic interests of the members ahead of those of the client or employer (Kemper, 1982, 267).

A number of professional societies have also held that loyalty to employers and the public is incompatible with any form of collective bargaining. The National Society of Professional Engineers (NSPE) has fervently led the opposition to union organizing of engineers (Seidman, 1969, 224) and similar activities. Its position is reflected in the NSPE code of ethics: "Engineers shall not actively participate in strikes, picket lines, or other collective coercive action" (Sec. III, 1e). Before discussing two arguments for this view, let us take note of a few historical facts about unions and engineering.

Historical Note

The beginnings of engineering unionism in the United States occurred during World War I (Seidman, 1969, 229). Marine architects and drafters were dissatisfied with their salaries at a time of both rising living costs and rising wages of blue-collar workers. Various groups were organized which later unified to become the American Federation of Technical Engineers, an affiliate of the former American Federation of Labor (AFL).

Most contemporary engineering unions, however, had their origin during the 1940s. These groups usually remained independent of the large national unions like the AFL and the CIO (Congress of Industrial Organizations). World War II and its aftermath brought widespread job insecurity, unhappiness with salaries, and lessened professional recognition (Walton, 1961, 18-45). Yet engineering unions were never able to organize most engineers. In fact, at their peak during the late 1950s, engineering unions had only 10 percent of the total number of engineers as members.

Beginning around 1960, what unionism there was in engineering declined. Now about 25,000 engineers, scientists, and technicians still belong to unions (Asbrand). One major factor for the decline is that engineering salaries have risen favorably in comparison with salaries of graduates of other 4-year programs (although they have not necessarily risen in terms of real income). With many new technologies developing, moreover, engineers have been in great demand.

These observations do not necessarily apply to all industries. In the aerospace industry, for instance, a history of high job turnover has created a highly mobile group of engineers with lessened job security. When engineers at two major aerospace firms were polled in a study by Archie Kleingartner, 30 percent of those eligible to join were found to be members of unions. While this is by no means a majority, a surprising number of engineers working for the two firms disagreed with the statement that "it is impossible for an engineer to belong to a union and at the same time to maintain the standards of his profession." The percentages disagreeing ranged from 68 percent among low-level professionals to 91 percent among high-level professionals (Kleingartner, 1969, 230). As a result of his study, Kleingartner concluded that

...the majority of engineers interviewed...do not view unionism as threatening their professionalism, and very likely also they do not see it coming between them and management in any fundamental way. They attribute substantially less importance to the potentially disrupting effects of unions than does management. The engineers view unions as limited institutions performing certain limited functions (Kleingartner, 1969, 235).

When a union is viewed as an external service organization and not as an embodiment of collective will, its size will depend greatly on how well it fulfills its functions (Latta, 1981). Lacking real bargaining power, engineers' unions find it hard to overcome opposition from management and profes-

sional societies, even when the quality of worklife is low and attitudes toward management are negative (Manley et al. 1979).

Engineers also show an increasing interest in becoming managers themselves. An engineering degree and several years of experience can open doors in this direction. Employers encourage the trend by making engineers identify with management early on.

Professional societies oppose unionization because of the issue of conflicting loyalties and on the grounds that it is unprofessional. Let us now turn to two arguments in support of this stand as advanced by the NSPE: The first we will call the "faithful agent argument" and the second the "public service argument."

The Faithful Agent Argument

In the current NSPE Code the ban on the use of "collective coercive action" appears as one of the principles of obligation concerning professional integrity (Sec. III 1-e). Yet in earlier versions it was placed prominently in the first section, which dealt with loyalty to employers:

Section 1—The Engineer will be guided in all his professional relations by the highest standards of integrity, and will act in professional matters for each client or employer as a faithful agent or trustee....

f. He will not actively participate in strikes, picket lines, or other collective coercive action (1979 NSPE Code).

The implication is that being the faithful trustee of one's employer is incompatible with actively supporting collective action aimed against that employer.

In a number of NSPE publications this position has been explicitly endorsed. In 1976, for example, NSPE's Board of Ethical Review reiterated it in discussing a hypothetical example (Case No. 74-3). The case concerned the unionized employees in a state highway department. The employees, most of whom were not engineers, voted to strike when their demands for a pay increase of 60 percent and other benefits were denied. The Board of Ethical Review insisted that it was unethical for the engineers to participate actively, even though not to do so might mean facing union penalties. Passive participation, such as not crossing picket lines, was ruled permissible if it was necessary to avoid physical danger or abuse. The argument given was concise: "the engineers have a higher standard than self-interest; they have the necessary ethical duty to act for their employer as a faithful agent or trustee."

Obviously the Board saw active support of a strike or other collective action used against an employer as a violation of professional ethics, which it identified with the duty engineers have to serve as their employer's "faithful agents or trustees." Many people involved in engineering would agree with such a view, and certainly a case can be made for it. The conduct under discussion involves several features, any one of which might seem inconsistent

with loyalty to employers: (1) It goes against the desires or interests of the employer, (2) it uses coercion or force against the employer, and (3) it involves *collective* and organized opposition. Certainly we can all think of behavior along these lines which is unprofessional and disloyal. The difficulty, however, is that not every instance of such conduct is unethical, as the following two examples show.

Consider three supervisory engineers who have good reason to believe they are being underpaid. After individually reasoning with their bosses to no avail they threaten—in a polite way—to seek employment elsewhere. In doing so, they act against the desires and interests of their employer, and they use a type of collective coercion. But they have not acted unethically or violated their duty to their employers. The point, which should by now be familiar, is that the duty to an employer has limits. Loyalty and faithfulness do not always require sacrificing one's own self-interest to an employer's business interests.

Or consider this second case: Management at a mining and refinery operation have consistently kept wages below industry-wide levels. They have also sacrificed worker safety in order to save costs by not installing special structural reinforcements in the mines, and they have made no effort to control excessive pollution of the work environment. As a result the operation has reaped larger than average profits. Management has been approached both by individuals and by representatives of employee groups about raising wages and taking the steps necessary to ensure worker safety, but to no avail. A nonviolent strike is called and the metallurgical engineers support it for reasons of worker safety and public health. Here collective action aimed at coercing an employer is being used—and specifically a strike. But is it unethical or unprofessional?

It will be objected that these are special cases, and of course they are. They were designed expressly to show that it is not always obvious that a strike or other collective, forceful, action on the part of employees is unprofessional, excessively self-interested, or disloyal to employers. One must look at specific unions, specific strikes, specific situations. Even in the case discussed by the Board of Ethical Review we would want to know whether the union demands were reasonable. Were the workers so seriously underpaid that a 60 percent raise was not as fantastic as it sounds? And did the other benefits demanded relate to worker safety, compensation for injury, or possibly even public highway safety?

The examples suggest two generalizations. First, employee duty to employers does not entail unlimited sacrifice of economic self-interest. "Faithful agency" primarily concerns carrying out one's assigned tasks; it does not mean that one should never negotiate salary and other economic benefits from a position of strength.

Second, as the NSPE code itself states, the duty to employers is limited by the more paramount duty to protect public health, safety, and welfare. Moreover, duty to employers is also limited by considerations such as worker safety and the right to refuse to obey illegal or unethical directives. Collective

action of a coercive nature might sometimes be the only effective way to pursue these concerns of overriding importance. Professional societies have themselves engaged in a type of collective, coercive, action when they print editorials in official journals exposing companies for abuses they have committed against engineers.

NSPE recommends the use of a sounding board, composed of a mix of employees and managerial engineers, to settle disputes with employees through reasonable dialogue. Certainly where feasible this is preferable to the use of collective force. Yet only a confirmed optimist could think that this procedure will always provide adequate support for salaried engineers.

The Public Service Argument

A second general argument against unions begins by emphasizing that the paramount duty of engineers is to serve the public. It then notes that by definition unions seek to promote the special interests of their members, not the interests of the general public. It is inevitable, so the argument continues, that clashes will occur, posing a threat to the meeting of professional commitments to the public. Strikes, which are the ultimate source of power for unions, may wreak havoc with the public good. Witness what has happened in recent strikes by police officers, firefighters, teachers, and nurses. Then imagine what would happen to the economy if all computer engineers and technicians were to go on strike!

There is force in this argument. Yet once again it points out only the dangers of unions, even using the worst possible scenario of what might happen, and assumes that engineering unions must act irresponsibly. *Of course* many unions have acted in that way, but not all.

It is at least possible that a collective bargaining group for engineers, whether called a union, a guild, or an association, led by professional engineers, could devote itself to promoting the interests of engineers only within the limits set by professional concern for the public good. It could also devote itself to giving positive support to ethical conduct by engineers—which, after all, is part of the self-interest of morally concerned engineers. As we shall see more fully in Chap. 6, engineers who have sought to protect the public have not always fared well at the hands of management. The collective power of a guild or union might prevent the vindictive firing of responsible whistleblowers (Shapley, 1972, 620). It might also secure certain economic benefits, such as portable pensions, which would allow engineers a greater measure of freedom to act in the face of possible dismissal for whistle-blowing or for refusing to act unethically.

Conclusion

What we have said is neither a general endorsement of unionism nor a blanket condemnation of it. Our intention was a limited one: to question two

of the main arguments used to show that there is an inherent inconsistency between professionalism and unionism. Whether collective bargaining and its tactics are unethical or not depends on the details of any given situation.

We would agree that unions often enough have abused their power and irresponsibly disregarded the public good, so that the formation of any new union carries with it new risks to professionalism. But to conclude, therefore, that the formation of engineering unions is *always* unprofessional is like arguing that because a new technology involves risks it should never be developed.

The moral assessment of unions is complex, and a considerable number of morally relevant facts must be considered before a judgment can be made about any specific case or before a generalization can be formed. Disputes over unionism itself, however, typically involve disagreements over claims like those given in the following two lists (Burton, 1978, 129; Kemper, 1982, 263-270).

Union Critics

1 Unions are a main source of inflation, which can devastate the economy of a country. Unions harm the economy by placing distorting influences on efficient uses of labor.

2 Unions encourage adversary, rather than cooperative, decision making. They also remove person to person negotiations between employers and employees and make the individual worker a pawn of the collective bargaining group.

3 Unions promote mediocrity and discourage initiative by emphasizing job security and by making job promotion and retention rest on seniority. Management is prevented from rewarding individuals by having to negotiate salaries according to job description and length of company service rather than according to personal achievement. A further side effect is the pigeonholing of employees in narrow job classifications to which the salary scales are attached.

4 Unions encourage unrest and strained relations between workers and management.

Union Supporters

1 Unions have been the primary factor in creating healthy salaries and the high standard of living enjoyed by today's workers. Even nonunionized workers have benefited since their employers must pay salaries comparable to those unions win for their workers.

2 Unions give employees a greater sense of participation in company decision making. For example, the European practice of codetermination, in which union representatives serve on boards of directors, has contributed to labor peace.

3 Unions are a healthy balance to the power of employers to fire at will. They give workers greater job security and protection against arbitrary treat-

ment. Employees with union backing are more able to resist orders to perform unethical acts.

4 Unions yield stability by providing an effective grievance procedure for employee complaints. They are also a counterforce to radical political movements which exploit worker dissatisfaction and alienation.

Study Questions

- 1 Present and defend your view as to when collective action aimed at employers does or does not involve unfaithfulness and disloyalty on the part of the employees. In doing so distinguish between the two senses of "loyalty" given earlier in this chapter. Consider issues like salary, harmful labor practices, and the public good. Also consider the use of collective action by different groups, such as (a) unions, (b) professional societies, (c) nonunion employee groups, and (d) manufacturer's associations and trade organizations.
- 2 Answer the questions asked by Philip M. Kohn and Roy V. Hughson in regard to the following case. Give reasons.

Reginald's company pays its engineers overtime plus a bonus to work during a strike. The plant is being struck over "unsafe" working conditions, a claim that the company disputes. Reginald, considered by the company to be "management," believes conditions *may* be unsafe, even though no government regulations apply. Should Reginald:

- 1 Refuse to work, because he thinks the union's allegations may have merit?
- 2 Refuse to work, because he believes that strike-breaking is unethical?
- 3 Work, because he feels this is an obligation of all members of management?
- 4 Work, because it is a great way to catch up on some of his bills, or earn the down payment on a car, etc.?
- 5 Work, because he believes he may be fired if he doesn't?
- 6 Other? (Please specify) (Kohn and Hughson, 1980, 102 and 105)

WHITE-COLLAR CRIME: CASE STUDIES

White-collar crime is the secretive violation of laws regulating work activities, usually, but not always, committed by white-collar workers. It ranges in severity from pilfering cash registers to bribing public officials. This section presents examples of three types of cases: stealing trade secrets, conspiring to fix prices, and endangering lives. The cases are offered as further contexts for discussion of the central themes in this chapter: professionalism, loyalty, conflicts of interest, and confidentiality.

Espionage in Silicon Valley

Santa Clara Valley in Northern California is a marvel of the high-tech and computer industries. For two decades it has been a major center for development and manufacture of integrated-circuit microprocessors, or "computer chips." The Valley has attracted vast numbers of creative engineers and en-

trepreneurs. It has also attracted industrial espionage on an unprecedented scale.

Several factors contributed to make the Valley an ideal environment for industrial espionage, that is, for stealing and illegal spying in industry. First, the development of computer chips is intensely competitive and fast-paced. Innovation is so rapid that products are often outdated within 2 years. Fortunes can be made or lost in months, depending on how quickly new products are developed and marketed.

Second, computer chips can be extremely expensive to develop; it may cost hundreds of thousands or millions of dollars to get a chip into production. Enormous savings are possible through legal reverse engineering. This involves literally "dismantling" a competitor's device—either mentally, physically, or by tests. The device is then "reconstructed" to produce an identical or better device which can be offered at a lower price because development costs were less or nonexistent. Even greater savings are possible by illegally acquiring design information from competitors.

Third, computer chips and the tools used to produce them are so small that it is easy to smuggle them out of offices and buildings. Stopping the smuggling would require body searches of the sort used in prisons. As it is, the chances of being caught are low.

Fourth, law enforcement has been ineffective, weakening the role of punishment in deterring crime. Most crimes go unreported to police. Managers often prefer to avoid bad publicity and embarrassment before stockholders. Until recently police lacked the sophistication even to understand the complicated nature of the materials being stolen. And even when tried and convicted, white-collar criminals suffer relatively modest penalties.

Fifth, employees who betray company secrets need not be artful criminals. Criminal "expertise" is provided by go-between criminals who buy trade secrets from one company and sell them to others.

Consider the case of Peter Gopal, who for a decade ran a lucrative trade as a go-between until he was caught in 1978 (Halamek, 1984; Hiltzig, 1982; Samuelson, 1982). Gopal was a semiconductor expert who worked for a number of high-tech companies before establishing his own consulting firm in 1973. He became a familiar figure in the Valley, and he developed numerous contacts which enabled him to buy and sell competitors' secrets.

One contact was James Catanich, a skilled electronics draftsman who worked for Gopal on a moonlighting basis in addition to his regular job at National Semiconductor Corporation. Gopal loaned Catanich \$10,000 for a home loan. Later he urged Catanich to pay off the debt with documents stolen from National Semiconductor. Catanich found this an easy way out of his financial difficulties, especially since his desk was located next to his supervisor's desk, which contained key circuitry documents.

Gopal sold National Semiconductor's secrets to Intel Corporation. He also stole from Intel to sell to National Semiconductor. Intel has one of the tightest security systems in Silicon Valley. Its security includes magnetic switches

and alarms over all doors, closed-circuit cameras in offices, passes worn by employees, strict control of access to documents, and armed guards. But Gopal learned that many Intel manufacturing materials were stored at NBK, an Intel subcontractor which lacked comparable security. NBK kept chip "reticles," the palm-sized glass plates which display magnified chip circuitry. It also stored "masks"—prints of a reduced image of the reticle—and data tapes giving design information. Gopal purchased copies of reticles and masks from Lee Yamada, the supervisor at NBK, who had easy access to everything Gopal needed.

Finally, Silicon Valley corporations have high employee turnover rates because of opportunities for advancement with competitors. Gopal found it easy to buy dozens of major trade secrets from former employees.

It required a complicated undercover operation conducted jointly by National Semiconductor, Intel, and the police to capture Gopal. After arresting him, police searched his apartment to find 27 reticles for a recent Intel chip and assorted loot from other companies. Gopal was convicted of domestic crimes involving American corporations, but there was strong evidence that he had also sold to European companies that deal with eastern bloc countries. His tax reports, it might be added, listed his annual income as \$30,000 despite the fact that he probably made millions of dollars.

Price Fixing in the Electrical Equipment Industry

In 1890 Congress passed the Sherman Antitrust Act. It forbids companies from jointly setting prices in ways that restrain free competition and trade. The Act has frequently been violated in the electrical equipment industry, where large contracts and few competitors are the norm.

For example, in 1983 six large electrical contractors, together with eight company presidents and vice presidents, were indicted on charges of conspiring to fix bids on four or five public power plants to be built in the state of Washington. The plants were valued at more than \$250 million. Company officers were charged with discussing the bids each would submit, sharing pricing information, and agreeing on the low bidder for each project. This ensured lucrative business for each company without having to beat the competition with low bids.

The most famous violation of the Sherman Act in the electric power industry was prosecuted in 1961 (Fuller, 1962; Herling, 1962; Geis, 1977; Bane, 1973). Forty-five individuals from twenty-nine corporations pled guilty or entered pleas of *nolo contendere* (i.e., "no contest," a plea that allows for some face saving).

Top officials of Westinghouse and General Electric were indicted, although their presidents were evidently kept ignorant of the conspiracy (analogously to how President Reagan is said to have been kept ignorant of the diversion of funds in the Iran-Contra scandal of 1987). Westinghouse and General Electric received fines of several thousand dollars, insignificant sums

for companies of their size. But subsequent civil suits by clients for triple damages ran in the hundreds of millions of dollars. Jail sentences of 30 days were imposed on seven defendants: four vice presidents, two division managers, and one sales manager.

The conspirators would allocate bids based on their companies' previous market shares. A company with 20 percent of the market, for example, would be allowed to submit the lowest bid for 20 percent of the new contracts. Occasionally the low bid was not accepted because of another company's better reputation, and then special adjustments would be made, sometimes involving heated negotiations. A few contracts were allocated on a rotating plan code-named "phase of the moon."

The participants were highly respected officials of their companies and members of their communities. Several were deacons in their churches. One was president of the local chamber of commerce. What could motivate such otherwise decent citizens to break the law?

Surprisingly, most of them did not view their activities as criminal or harmful, even though they knew they were "technically" illegal. In fact, many of them defended their conduct as beneficial. A Westinghouse executive offered the following testimony before a Senate subcommittee on anti-trust and monopoly.

Committee attorney: Did you know that these meetings with competitors were illegal?

Witness: Illegal? Yes, but not criminal. I didn't find that out until I read the indictment. . . . I assumed that criminal action meant damaging someone, and we did not do that. . . . I thought that we were more or less working on a survival basis in order to try to make enough to keep our plant and our employees. (Geis, 1977, 122)

Several conspirators also argued that the price fixing benefited the public by stabilizing prices.

The practice of price-fixing had been so widespread in the industry for so long that it became accepted as proper. A General Electric vice president testified that in 1946 his superior casually introduced him to the practice and presupposed that he would cooperate. At the time, he was a recent graduate in electrical engineering and was rapidly moving up the ranks of management.

This same man, incidentally, expressed indignation at his company for refusing to pay him his regular salary during the month he served in jail. "When I got out of being a guest of the government for thirty days, I had found out that we were not to be paid while we were there [a matter of some \$11,000 for the jail term], and I got, frankly, madder than hell" (Geis, 1977, 127).

Killing in Manufacturing

Employers who expose their employees to safety hazards usually escape criminal penalties. Victims will often sue companies for damages under tort

(i.e., civil) law, which allows them to gain compensation without having to prove a crime has been committed. This is true even when people die as a result of horrendous corporate negligence.

No example is more shocking than that of the companies in the asbestos industry, especially Manville Corporation (formerly Johns-Manville Corporation), which is the largest producer of asbestos. Manville knew from the 1930s and 1940s onward that asbestos fibers in the lungs cause asbestosis, an incurable form of cancer. For three decades it concealed this information from workers and the public who had a right to give informed consent to the dangers confronting them. In 1949 Manville's company physician defended a policy of not informing employees diagnosed with asbestosis: "As long as the man feels well, is happy at home and at work and his physical condition remains good, nothing should be said" (Brodeur, 1985, 174-175). When Manville was finally brought to trial, company officials claimed that some 1300 of the company's own studies of asbestos had mysteriously disappeared from its files.

One recent study showed that 38 percent of asbestos insulation workers die of cancer, 11 percent from asbestosis. It is predicted that "among the twenty-one million living American men and women who had been occupationally exposed to asbestos between 1940 and 1980 there would be between eight and ten thousand deaths from asbestos-related cancer each year for the next twenty years" (Brodeur, 1985, 6). The actor Steve McQueen is just one individual included among these grim statistics. In his youth he held a summer job handling asbestos insulation and two decades later died of asbestosis.

It seems doubtful that many, if any, of Manville's employees will be prosecuted. Tens of thousands of victims and their families have filed civil suits for damages, seeking monetary compensation rather than criminal justice. In order to postpone settling the flood of lawsuits, Manville filed for bankruptcy in 1982. (Its assets of \$2 billion made it the largest American corporation ever to do so.) A court agreement reached in 1985 allows it to continue operating while paying some \$2.5 billion in lawsuits over the next 25 years.

The year 1985 also saw a highly unusual court verdict in a different case. For the first time in history, a judge convicted three officials of a company for industrial murder (Frank, 1987). Film Recovery Systems was a small corporation which recycled silver from used photographic and x-ray plates. Used plates were soaked in a cyanide solution to leach out their silver content. Other companies use this process safely by protecting workers against inhaling cyanide gas and making skin contact with the liquid. Standard safety equipment includes rubber gloves, boots, and aprons, as well as respirators and proper ventilation.

None of these precautions were used by Film Recovery Systems. Workers were given useless paper face masks and cloth gloves. Ventilation was terrible, and respirators were not provided. Workers frequently became nauseated and had to go outside to vomit, before returning to work at the cyanide

vats. This continued until an autopsy on one employee, a Polish immigrant, revealed lethal cyanide poisoning.

Charges were brought against the executives of Film Recovery Systems under an Illinois statute which states that "a person who kills an individual without lawful justification commits murder if, in performing the acts which cause the death... he knows that such acts create a strong probability of death or great bodily harm to that individual or another" (Frank, 1987, 104). During the trial it was proven that the company president, the plant manager, and the plant foreperson all knew of the dangers of cyanide. They also knew about the hazardous conditions at their plant. Each was sentenced to 25 years in jail and fined \$10,000.

Study Questions

- 1 Discuss the cases in this section in light of the concepts of loyalty presented earlier in this chapter. In doing so, evaluate the following claim (taking account of different senses of "loyalty"): The Silicon Valley espionage involved disloyalty by employees and former employees; the cases of Manville and Film Recovery Systems involved lack of loyalty by employers to their employees; and the electrical equipment case involved misguided loyalty to the company.
- 2 Employers have often been reluctant to prosecute employees who commit crimes against them. It is easier just to fire them, thereby avoiding court hassles and bad publicity. Given that companies need to make profits, is this reluctance to bring criminal charges against employees morally permissible and responsible?
- 3 Criminal penalties for white-collar crimes have been relatively light, at least until recently. This is due, in part, to the belief that white-collar crimes are usually "victimless crimes," since corporations rather than individuals are harmed. Discuss this belief with respect to the cases of Silicon Valley industrial espionage and the electrical equipment price fixing. Are any individuals hurt in those cases, and how badly? Should those crimes be treated more lightly than crimes involving burglary, violence, or threatened violence? Would your answer be the same with respect to the cases of Manville and Film Recovery Systems?
- 4 In the Silicon Valley case, was Catanich in an immoral conflict of interest simply by moonlighting for Gopal?
- 5 The executives of Film Recovery Systems were convicted of murder. Critics have disagreed with this conviction on the grounds that murder involves intentional and purposeful killing. At most, say the critics, the executives committed manslaughter, which is killing due to negligence or indifference (such as when drunk drivers kill). Do you think the executives of Manville should be charged with manslaughter, murder, or no crime at all?
- 6 *Self-deception* is the intentional avoiding of truths which are painful to recognize (Martin, 1986). One might suspect or have general knowledge about an unpleasant truth and then turn away before learning more about it. Or one might engage in *rationalization*: giving biased explanations of one's motives and actions in order to maintain a flattering view of oneself. Discuss the possible role of self-deception in the electrical equipment case. Consider, for example, the distinction the conspirators drew between "illegal" and "criminal" conduct, and their belief that their actions were beneficial to the public. What personal benefits might have led them to

- believe that no one was hurt by the price fixing? How did this belief benefit their self-esteem?
- 7 Find the names of the main conspirators who were found guilty in the electric power equipment prosecutions of 1961 by consulting one or more of the books cited (Fuller, 1962; Herling, 1962; Geis, 1977; Bane, 1973). Then trace these persons' careers before and after 1961 by referring to *Who's Who in America*. How did the companies treat them? How would you have treated them? Do their civic involvements constitute mitigating circumstances?
 - 8 One way to control white-collar crime is to use polygraph (lie detector) tests. Are companies justified in giving their employees an annual polygraph test in order to ferret out employees who are stealing from them? (Consider this question again after reading Chap. 6.)
 - 9 Plan a role-playing session in which some participants defend and others attack various kinds of white-collar crime. Include typical occurrences not mentioned expressly in this chapter, such as padding pay rolls or falsifying test results. (Further examples appear in Chapter 7, sections 3 and 4.)

SUMMARY

Professions are occupations requiring sophisticated skills, extensive formal education, group commitment to some public good, and a significant degree of self-regulation. *Persuasive definitions* are frequently given for terms like "professionalism," "professional," and "profession." That is, special criteria (cognitive meaning) are applied to the terms with their generally positive connotations (positive emotive meaning). For example, some people think of the "professionalism of salaried engineers" as being centered in loyal service to employers, while others have seen it as freedom from control by employers; both, however, are persuasive definitions in that they link the emotional connotations of a term to special (and in this case controversial) cognitive criteria for applying the term.

In our view, the duty of engineers to the public is paramount in the sense that it deserves special emphasis given the contemporary obstacles to meeting that duty. Yet it is too much to say that obligations to the public always and everywhere should override obligations to employers. Both obligations are important. When they come into conflict it is necessary to examine the specific situation before deciding which ought to take precedence.

The relationship between loyalty to employers and other professional obligations is complex. Loyalty to employers can mean (1) meeting one's moral obligations to employers—in which case loyalty is automatically good; (2) being zealously supportive of the employers' interests—in which case there are limits to how far loyalty is good.

Institutional authority involves the right of employers and managers to exercise power so employees will meet their institutional duties, and the prerogatives it entails are specified by rules designed to further the institution's good; it is not the same as *expert authority* (special knowledge or expertise). Institutional authority is morally justified only where the goals of the insti-

tution are morally permissible or desirable and when the way in which it is exercised does not violate other moral duties.

Authority relationships between employers and employees are normally necessary for avoiding the negative effects of unlimited individual discretion. And the employment contract constitutes a promise on the part of employees to recognize legitimate institutional authority. The obligation to obey authoritative directives, however, should not be construed as an obligation to suspend one's critical faculties and blindly follow those directives regardless of their moral content.

Employee conflicts of interest occur when employees have side interests which if pursued could prevent them from meeting their obligation to serve the interests of their employers. Such side interests are generally understood to threaten employer interests in one main way: They have the potential to bias the employee's independent judgment. Examples of conflicts of interest include moonlighting for a competitor, misusing inside confidential information for personal gain, and accepting substantial gifts from clients or suppliers. Some conflicts of interest are permissible, however, subject to the employer's approval.

Confidential information is information which an employer or client judges should be kept secret to serve the company's or client's interests. *Proprietary information* and *trade secrets* are information which is protected by the courts. The confidentiality obligation can be justified in rights-based theories (for example, by reference to the rights of stockholders or the rights to intellectual property of corporations), in duty-based theories (by reference to the mutual promises of the employment contract), and in utilitarian theories (by reference to the benefits derived by companies and the public). Moral dilemmas can arise for engineers when they move to new jobs since they may possess privileged information from their old jobs which they carry with them. The confidentiality obligation extends beyond the old job, however, and places reasonable restraints on engineers in regard to how and when they may work for new employers. The confidentiality obligation is limited by the public's right to be warned of potential hazards.

Unionism and professionalism seem inherently incompatible when the duty of employees to employers is seen as paramount and unlimited. But when that duty is viewed as limited by both a legitimate degree of self-interest on the part of employees and the wider good of the public, the incompatibility becomes less clear. Rather, individual unions and union tactics must be assessed in terms of their positive and negative effects in specific situations.

White-collar crime is the secretive violation of laws regulating work activities, whether or not by white-collar workers. It is motivated by personal greed, corporate ambition, misguided company loyalty, and many other motives. Only recently have penalties begun to toughen sufficiently to provide deterrence for individuals for whom ethical motivation does not suffice.

RIGHTS OF ENGINEERS

5

Several years ago Charles Pettis was sent by Brown and Root Overseas, Inc., to serve as resident engineer in Peru. Brown and Root had been hired by Peru's government to protect its interest on a project being undertaken by another firm, Morrison-Knudsen. The project was breathtaking: construction of a 146-mile highway across the Andes Mountains. The highway would open major new trade routes between Peru's coast and its isolated inner cities on the other side of the Andes. At age forty-four, with years of experience as a geological engineer behind him, Pettis was given the key assignment of ensuring that contract agreements between the Peruvian government and Morrison-Knudsen were met. His signature on the payroll certified that the interests of the Peruvian government were being served.

Almost immediately Pettis experienced doubts about the project. The design for the highway, which had originally been done by Brown and Root and was therefore a source of potential conflict of interest, called for cutting deep channels—some of them 300 feet deep—through the mountains with cliffs rising sharply on both sides of the road. Unfortunately, the Andes Mountains are known for their instability, and not enough geological borings had been taken to identify potential slide areas. Pettis's worries about this problem were confirmed when several slides and other construction incidents killed thirty-one workers.

Morrison-Knudsen instructed Pettis to add to the payroll in order to cover the substantial costs of slide removals. Pettis viewed this as padding and as not justified by anything in the contract. At first Brown and Root supported him. But later Morrison-Knudsen had exerted sufficient pressure on Brown

and Root management that they ordered Pettis to add the slide-removal costs to the payroll. He continued refusing to do so, insisting it would be a violation of the Peruvian government's interests, which he was charged with protecting. At that point Brown and Root relieved him of responsibility for payroll authorization.

Suspensions, however, had been aroused in the minds of Peru's transportation officials. They sought direct assurances from Pettis that the work was proceeding properly. Brown and Root placed enormous pressure on him to give those assurances, even promising him his pick of jobs if he cooperated. But Pettis refused to lie to his client. As a result Brown and Root fired him.

When Pettis later learned of Senator William Proxmire's investigations into the contract policies of multinational construction companies, he volunteered to testify before officials of the General Accounting Office, and while doing so he blew the whistle on Brown and Root and Morrison-Knudsen. The General Accounting Office was able to confirm Pettis's charges of corporate misconduct (Peters and Branch, 1972, 183-186; Nader, Petkas, and Blackwell, 1972, 135-139).

Issues

Do engineers have a moral right to refuse to carry out what they consider to be unethical activity? How far are employers obligated to respect this right and to forgo the use of coercion and retribution in dealing with those employees who exercise it? Should engineers be recognized as having rights to speak out to clients, government regulators, and others concerning their employers' misconduct?

It may seem that endorsing such rights is incompatible with allowing employers full charge to direct a company. Isn't the position Pettis took inconsistent with recognizing management's rights? And what if management honestly disagrees with an engineer's safety judgments or interpretations of a contract?

Issues concerning the rights of engineers and other professionals working within organizations were usually given little attention. Only recently has the topic of the rights of employees been as seriously discussed as their duties and responsibilities. Indeed, the 1980s promises to be the decade when discussion of the rights of employed professionals reaches full maturity (Westin and Salisbury, 1980, xi).

PROFESSIONAL RIGHTS

Engineers have different types of moral rights, which fall into the sometimes overlapping categories of human, employee, contractual, and professional rights. As human beings, engineers have fundamental rights to live and

freely pursue their legitimate interests. For example, a human right we will discuss later in this chapter, in the section titled "Discrimination," is the right not to be unfairly discriminated against in employment on the basis of sex, race, or age. Another example, mentioned in connection with confidentiality in Chap. 5, is the human right to pursue one's career.

As employees, engineers have special rights, some of which will be explored later in this chapter, in the section titled "Employee Rights." Some of those include institutional rights which arise from specific agreements in the employment contract. For example, there is the right to receive one's salary and other company benefits in return for performing one's duties. However, other employee rights are not reducible to purely institutional rights. For example, the right to engage in the nonwork political activities of one's choosing, without reprisal or coercion from employers. Employers ought to respect this right, whether or not it is explicitly recognized in a contract or employment agreement.

Finally, engineers as professionals have special rights which arise from their professional role and the obligations it involves. Those include the right to form and express one's professional judgment freely (without intimidation), the right to refuse to carry out illegal and unethical activity, the right to talk publicly about one's work within bounds set by the confidentiality obligation, the right to engage in the activities of professional societies, the right to protect clients and the public from the dangers or harm that might arise from one's work, and the right to professional recognition (including fair remuneration) for one's services. All these, as we shall see, can be viewed as aspects of one fundamental professional right.

The Basic Right of Professional Conscience

There is one basic or generic professional right of engineers: the moral right to exercise responsible professional judgment in pursuing professional responsibilities. Pursuing those responsibilities involves exercising both technical judgment and reasoned moral convictions. For brevity, this basic right can be referred to as *the right of professional conscience*.

If the duties of engineers were so clear-cut that in regard to every situation it was obvious to every sane person what it was morally acceptable to do, there would be little point in speaking of "conscience" in specifying this basic right. Instead, we could simply say it is the right to do what everyone agrees it is obligatory for the professional engineer to do. But as we have seen throughout this book, engineering calls for as morally complex decisions as any other major profession does. It requires autonomous moral judgment in attempting to uncover the most morally reasonable courses of action, and the correct courses of action are not always obvious.

As with most moral rights, the basic professional right is an entitlement giving one the moral authority to act without interference from others. It is

what we earlier called a "liberty," since it places an obligation on others *not* to interfere with its proper exercise.

Yet occasionally special resources may be required by the engineer seeking to exercise it in the course of meeting his or her professional obligations. For example, conducting an adequate safety inspection may require that special equipment be made available by employers. Or, more generally, in order to feel comfortable about making certain kinds of decisions on a project, the engineers involved may need an environment conducive to trust and support which management may be obligated to help create and sustain. In this way the basic right is also in some respects a "positive right," placing on others an obligation to do more than merely not interfere.

Institutional Recognition of Moral Rights

Having a moral right is one thing. Having it respected by others and given recognition within a corporation is quite another. When engineers appeal to the basic right of professional conscience they may be arguing for its institutional recognition by employers.

Consider in this connection the following comments made by two engineers at the 1975 Conference on Engineering Ethics:

H. B. Koning: I think that one item that should be in the code of ethics is that engineers have the right at all times to exercise the dictates of their own consciences. For example, they need not apply their knowledge, skill and energy to scientific or technical business actions or plans which they feel will violate or lead to the violation of their personal or professional ethical standards (*Conference*, 99).

N. Balabanian: Few engineers are self-employed. The vast majority work for others. What is desperately needed for engineer employees is to have a right of conscience. It isn't so much a matter of forcing engineers to conduct themselves ethically but to give them room—room for action—to carry out their own personal ethical convictions without threats of retribution (*Conference*, 101).

The first speaker is appealing to the moral right of professional conscience which engineers *do* have, even though it is not formally recognized in codes. He is arguing that this right should be stated formally and given official recognition. The second speaker seems to mean by a "right to conscience" an institutionally recognized right, one which engineers will have only after employers acknowledge and respect it. Both speakers are arguing for similar points, but using different language.

Specific Professional Rights

The right of professional conscience is the most basic—but also the most abstract—generic, professional right. It encompasses many other more particular rights. As with professional duties, specific professional rights can be stated in different ways involving different levels of generality.

For example, engineers have a general *obligation* to protect the safety and well-being of the public. Correspondingly, they have a general *right* to protect the safety and well-being of the public. As we will discuss in the next section, that obligation to the public might in special situations require whistle-blowing. Thus engineers have a (limited) right to whistle-blow. In turn, the whistle-blowing right becomes more precisely specified by listing conditions under which whistle-blowing is permissible. In general, as a particular professional obligation is more narrowly delineated, the corresponding professional right is also more precisely specified.

Realizing that professional rights can be stated with different degrees of abstraction helps us avoid two mistakes. First, just because some talk about professional rights in couched in abstract and general terms should not lead us to dismiss its significance. The same potential difficulty surrounds other rights. Consider the right to live. In the abstract, it sounds like it entails a right never to be killed. But it does not: for example, in situations where the only way to prevent a murder from occurring is to kill the murderer first. Such tacit limits on the right to live do not lead us to reject that right as nonsense. Similarly, sensitivity to the necessary limits on the rights of professional conscience within organizations should not lead us to dismiss lightly the importance of those rights.

A related second danger is that talk about rights may be used too loosely and not made specific with respect to given contexts. It will not do, for example, to object to every negative action by an employer as violating the rights of engineers. Even such vitally important rights as protection of public safety may in some situations be limited by the legitimate rights of employers—at least this possibility has to be explored. Neither the rights of engineers nor those of employers are unrestricted moral “passes,” and there will always be difficult moral dilemmas involving conflicts between them. Such dilemmas can be resolved by developing cogent arguments for why one right should be limited in a specific context by another right.

Both the importance and the difficulty of applying professional rights in specific circumstances can be illustrated by the examples of the right of conscientious refusal and the right to professional recognition.

Right of Conscientious Refusal The right of conscientious refusal is the right to refuse to engage in what one believes and has reason to believe is unethical behavior, and to refuse to do so solely because one views it as unethical. This is a kind of second-order right. It arises because other rights to pursue moral obligations within the authority-based relationships of employment sometimes come into conflict.

There are two situations to be considered: (1) where there is widely shared agreement in the profession as to whether or not an act is unethical and (2) where there is room for disagreement among reasonable people over whether an act is unethical.

It seems clear enough that engineers and other professionals have a moral

right to refuse to participate in activities which are straightforwardly and uncontroversially unethical (e.g., forging documents, altering test results, lying, giving or taking bribes, or padding payrolls). And to coerce them into doing so by means of threats (e.g., to their jobs) plainly constitutes a violation of this right.

The troublesome cases concern situations where there is no shared agreement about whether or not a project or procedure is unethical. Possibly the Charles Pettis case involved different assessments of whether or not slide-removal charges could ethically be charged to Peru's government under the contract agreement. Do engineers have any rights to exercise their personal consciences in these more cloudy areas?

Let us approach this question with a rough analogy from medical ethics. There is no shared agreement over whether abortions are morally permissible or not. Yet, as is widely acknowledged, nurses who believe them to be immoral have a right to refuse to participate in abortion procedures. This is so even though nurses function under the institutional authority of doctors, clinics, and hospitals in ways analogous to how engineers work under the authority of management. Nevertheless, nurses' rights do not extend so far as to give them the right to work in an abortion clinic while refusing to play their assigned role in performing abortions.

Likewise, we believe engineers should be recognized as having a *limited* right to turn down assignments which violate their personal consciences in matters of great importance, such as threats to human life, even where there is room for moral disagreement among reasonable people about the situation in question. We emphasize the word "limited" because the right is contingent on the organization's ability to reassign them to alternative projects without serious economic hardship to itself.

For example, consider an engineer who requests not to work on a South African project because she views such work as supporting a racist regime. Her corporation should be willing to try to find an alternative assignment for her, without any implication that she is being disloyal to the company. Yet if the bulk of the work for which she is needed is on South African projects, she must be willing to seek employment elsewhere. The right of professional conscience does not extend to the right to be paid for not working.

Right to Recognition Engineers have a right to professional recognition for their work and accomplishments. Part of this has to do with fair monetary remuneration, and part has to do with nonmonetary forms of recognition.

The right to reasonable remuneration is sufficiently clear that it can serve as a moral basis for arguments against corporations which make excessive profits while engineers are paid below pay scales of blue-collar workers. It can also serve as the basis for criticizing the unfairness of patent arrangements which fail to give more than nominal rewards to the creative engineers who make the discoveries leading to the patents. If a patent leads to millions of dollars of revenue for a company, it is unfair to give the discoverer a nominal bonus and a thank you letter.

But the right to professional recognition is not sufficiently precise to pinpoint just what a reasonable salary is or what a fair remuneration for patent discoveries is. Such detailed matters must be worked out cooperatively between employers and employees, for they depend upon both the resources of a company and the bargaining position of engineers.

It may seem, incidentally, that the right to fair remuneration is related merely to the engineer's self-interest, and as such does not properly fall under the basic right of professional conscience. Of course it does centrally involve self-interest. But there are also reasons why it is related to the basic right of conscience. For one thing, without a fair remuneration engineers cannot concentrate their energies where they properly belong—on carrying out the immediate duties of their jobs and on maintaining up-to-date skills through formal and informal continuing education. Their time will be taken up by money worries, or even by moonlighting in order to maintain a decent standard of living. Or consider the seemingly "purely" economic issue of portable pensions. If a company's retirement plan is tied to ongoing employment with that company, engineers will feel considerable pressure not to leave their jobs. This pressure can deflect them from vigorously pursuing their obligations in situations where employers' directives are not in line with the legitimate needs or safety of clients and the public.

Nonmonetary forms of recognition are also important. Consider the following report by a 40-year-old chemical engineer:

I have had to write papers and sections of books which appeared under the authorship of my supervisor three levels up, on matters he can hardly understand, much less contribute to except by proof reading for grammatical errors. . . . The four key people whose work he became a world-recognized success by are disposed of as follows:

- (1) Dead, heart attack, age 53, Ph.D. Chemical Engineering
- (2) Dead, heart attack, age 42, M.S. Chemistry
- (3) Dismissed from his job, age 49, Ph.D. Chemistry
- (4) Mental breakdown, 2 months in psychiatric hospital, age 36, Ph.D. Chemical Engineering, currently seeking other employment (Bailyn, 1980, 73).

The point of this medical and obituary report is presumably to underscore how unhealthy it is to work hard at one's job without proper recognition. Unrecognized work is also demeaning. But just how far employers are morally required to go in providing fair recognition for their engineers is again a matter that must be regularly discussed and mutually agreed upon by management and engineers.

Moral Foundation of Professional Rights

Thus far we have said that engineers' professional rights, by definition, are those possessed by virtue of being engineers. More fully, they arise because of the special moral duties engineers acquire in the course of serving the public, clients, and employers. We have given several examples of those rights

and illustrated the complexities that arise when we begin to apply them. Next we must inquire into the moral basis or justification for asserting that such rights do indeed exist.

Professional rights and duties are not identical with the rights and duties of nonprofessionals, but neither are they unrelated to them. Professional rights and duties are justified in terms of more basic moral principles which also apply outside the professional job context. One's view of those more basic moral principles will depend, of course, on the particular ethical theory one endorses: rights ethics, duty ethics, or utilitarianism.

There are two general ways to apply ethical theories to justify the basic right of professional conscience. One is to proceed piecemeal by reiterating the justifications given for the specific professional duties. Whatever justification there is for the specific duties will also provide justification for allowing engineers the right to pursue those duties. Fulfilling duties, in turn, requires the exercise of moral reflection and conscience, rather than rote application of simplistic rules. Hence the justification of each duty ultimately yields a justification of the right of conscience with respect to that duty. But throughout this book we have illustrated how to justify various specific duties of engineers by means of more general ethical theories and there is no need to repeat that process here. Instead we shall pursue a second way to justify the right of professional conscience, which involves grounding it more directly in the ethical theories. Here, as elsewhere, we invoke the ethical theories to serve as general models for organizing moral reflections and to provide frameworks for approaching practical problems.

A Rights Model Rights theories, it will be recalled, emphasize human moral rights as at least one ultimate ground of morality. "Ultimate" means that human rights do not themselves need to be justified by referring to other, more fundamental moral principles. Thus a rights-based ethicist will seek to justify professional rights—in particular the basic right of professional conscience—by reference to human rights.

Let us follow A. I. Melden in viewing the most basic human right as the right to pursue one's legitimate interests. "Legitimate interests" will be those which do not violate others' rights. Hence the rights of any one individual must be understood within the context of a community of people, each of whom has rights which limit the extent of others' rights. Melden emphasizes that this community is a moral community, based upon ties of mutual understanding and concern (Melden, 1977, 140-145).

Although Melden does not himself apply his theory to professional rights, we would apply it as follows. "Legitimate interests" surely include moral concerns, especially concerns about meeting one's obligations. Thus the right to pursue legitimate interests implies a right to pursue moral obligations. This may be viewed as a human right of conscience directly derived from the most basic human right.

Now as engineers and other professionals take on special professional ob-

ligations, this general right of conscience acquires a further extension: It gives rise to a right of professional conscience which relates to specific professional obligations. In this way, the right of professional conscience is justified by reference to human rights as applied to the context of professional activity.

A Duty Model In duty ethics, rights are not the ultimate moral appeal. Instead they are mirror-image correlates of more basic duties. If I have a right to do something it is only because others have duties or obligations to allow me to do so. Within this context, the basic professional right is justified by reference to the duties others have to support or not to interfere with the work-related exercise of conscience by professionals. But who are these others, and what specifically do their duties entail? In regard to professionals, the "others" are their employers. And most importantly in regard to professional engineering, employers have a duty not to harm the public by placing handicaps in the way of the engineers they employ as those engineers seek to meet their obligations to the public. In addition, employers are directly obligated to professionals not to use coercion (i.e., not to threaten negative sanctions) which would encourage any compromise of personal moral integrity. To return to an earlier example, no hospital administrator has the right to pressure a Catholic nurse to participate in an abortion by threatening to fire her; to do so would show an utter disregard for her dignity as a moral agent (to use Kant's language). Similarly no employer has the right to threaten engineers with the loss of their jobs for refusing to work on projects they see as likely to lead to the death or injury of unsuspecting victims.

A Utilitarian Model Utilitarians will justify the right of professional conscience by reference to the basic goal of producing the most good for the greatest number of people. And no matter how "goodness" is defined, the public good is certain to be served by allowing professionals to meet their obligations to the public. For those obligations arise in the first place because of the role they play in promoting the public good.

Rule-utilitarians will seek to establish the best rule or policy in regard to employee rights for promoting the public good. Act-utilitarians will look at each situation to see whether and how far professionals should be allowed to exercise their consciences in pursuing their duties to the public.

Study Questions

1 Consider the following example by Philip M. Kohn and Roy V. Hughson:

Jay's boss is an acknowledged expert in the field of catalysis. Jay is the leader of a group that has been charged with developing a new catalyst system, and the search has narrowed to two possibilities, Catalyst A and Catalyst B.

The boss is certain that the best choice is A, but he directs that tests be run on both, "just for the record." Owing to inexperienced help, the tests take longer than expected, and the results show that B is the preferred material. The engi-

neers question the validity of the tests, but because of the project's timetable, there is no time to repeat the series. So the boss directs Jay to work the math backwards and come up with phony data to substantiate the choice of Catalyst A, a choice that all the engineers in the group, including Jay, fully agree with (Kohn and Hughson, 1980, 103).

What should Jay do, and does he have a moral right to not do as he is directed?

- 2 Comment on the following passage, making any suggestions about how engineers might be protected against such situations:

Older engineers, in particular, find job security in competition with ethical instinct. With considerable sympathy, I recall the dilemma of an older PE, in the shadow of a comfortable retirement, who was confronted by a new general manager of the plant in which he was employed as a facilities engineer. In consideration of plans for a plant expansion, the general manager insisted that the PE reduce footings and structural steel specifications below standards of good practice. The PE was told to choose between his job and his seat on the plans. Did he really have a choice? (Howard, 1966, 48)

- 3 In 1971 Louis V. McIntire and Marion McIntire published a novel entitled *Scientists and Engineers: The Professionals Who Are Not*. The story was about the problems encountered by J. Marmaduke Glumm, a chemist working for the Logan Chemical Company. It portrayed the disillusionment of scientists and engineers pressured into becoming managers and thus forced to move away from their original areas of expertise. It also described the tactics management used to cheat employees out of bonuses, to show unjustified favoritism, to take unfair advantage of employees in employment contracts, and to coerce professionals into going along with management's views on safety and health hazards. The novel recommended that engineers form a national federation to seek laws protecting and favoring engineers working as employees.

The novel was a thinly disguised satire of the company Louis McIntire had worked for during the past 17 years: Du Pont. When McIntire's employers learned about the novel in 1972 they fired him. In 1974 McIntire sued Du Pont, but his claim that the First Amendment protected him from being fired was rejected by the courts.

Present and defend your view as to whether McIntire had a moral right not to be fired for writing the novel. Do you think the courts should have recognized such a right legally?

- 4 Leonardo da Vinci reported in his journal that he had discovered how to make what today we would call a submarine. He also noted that he refused to reveal the idea to anyone because of what he viewed as its likely misuse. He wrote:

... now by an appliance many are able to remain for some time under water. How and why I do not describe my method of remaining under water for as long a time as I can remain without food; and this I do not publish or divulge on account of the evil nature of men who would practice assassinations at the bottom of the seas, by breaking the ships in their lowest parts and sinking them together with the crews who are in them. (da Vinci, 850)

Suppose that da Vinci discovered this idea while he was employed as a military engineer for Cesare Borgia or other military leaders, as he was at times in his career. Would he have had a moral right to refuse to reveal the idea to his employer? Would

he be disloyal to the employer if he did refuse to reveal it? Why draw a line now? Defend your view by means of one of the ethical theories outlined earlier.

WHISTLE-BLOWING

We have seen how obligations to the public and to clients may come into conflict with obligations to employers. And considering the importance of obligations to the public, especially the obligation to inform those members of the public affected by "social experimentation" through engineering, we have suggested that sometimes, though not always, obligations to the public override obligations to an employer. In seeking to meet those obligations to the public, engineers and others have sometimes engaged in what is known as "whistle-blowing."

A variety of normative moral issues arise in connection with blowing the whistle on organizations: Is it ever morally permissible to do so? When? Is whistle-blowing ever morally obligatory? Is it always an act of disloyalty to an organization, or could it sometimes be consistent with company loyalty—even an expression of it? Should it sometimes be viewed as an act of moral heroism which goes beyond the call of duty? What procedures ought to be followed in blowing the whistle? And to what extent do engineers have a right to "whistle-blow?"

Before considering some of these questions, though, we need to define whistle-blowing.

Definition of Whistle-Blowing

Whistle-blowing is sometimes defined as making public accusations concerning misconduct by one's organization (Bok, 1980, 277; James, 1980, 99; Bowie, 1982, 142). This definition, however, is too narrow. On the one hand, an individual need not be a member of an organization in order to blow the whistle on it publicly. Journalists, politicians, and consumer groups may learn of corruption in organizations they do not work for and blow the whistle on them by publishing articles or informing regulatory agencies. Our main interest in this section, however, will be in whistle-blowing by employees (both present and former employees), especially where disobedience of an employer's directives or company policies is involved.

On the other hand, not all whistle-blowing involves going outside the organization. Recall the Ford engine-test case discussed at the beginning of Chap. 5. There the whistle was blown within the organization when the computer specialist wrote a memo to the company president informing him of misconduct in the engine and foundry division.

We shall not attempt to define all types of whistle-blowing in all situations. Instead, we shall list four main features that characterize most cases of whistle-blowing by employees of organizations, whether the whistle is being blown on individuals or problems within the organizations:

1 Information is conveyed outside approved organizational channels or in situations where the person conveying it is usually under pressure from supervisors or others not to do so.

2 The information being revealed is new or not fully known to the person or group it is being sent to.

3 The information concerns what the whistle-blower believes is a significant moral problem concerning the organization. Examples of significant problems are criminal behavior, unethical policies, injustices to workers within the organization, and threats to public safety.

4 The information is conveyed intentionally with the aim of drawing attention to the problem.

Using these four features as our definition, we will speak of *external whistle-blowing* when the information is passed outside the organization. *Internal whistle-blowing* occurs when the information is conveyed to someone within the organization.

The definition also allows us to distinguish between open and anonymous whistle-blowing. In *open whistle-blowing* individuals openly reveal their identity as they convey the information. *Anonymous whistle-blowing*, by contrast, involves concealing one's identity. But there are also overlapping cases, such as when individuals acknowledge their identities to a journalist but insist their names be withheld from anyone else.

Persuasive Definitions of Whistle-Blowing

Notice that the above definition leaves open the question of whether whistle-blowing is justified or not. As we shall suggest in a moment, sometimes it is and sometimes it is not. By contrast, some writers have packed into their definitions of whistle-blowing much of their own particular value perspectives concerning it. In doing so they have created persuasive or prescriptive definitions which sometimes blur the issues. Consider, for example, the following two proposals:

"Whistle-blowing"—the act of a man or woman who, believing that the public interest overrides the interest of the organization he [sic] serves, publicly "blows the whistle" if the organization is involved in corrupt, illegal, fraudulent, or harmful activity (Nader, Petkas, and Blackwell, 1972, vii).

Some of the enemies of business now encourage an employee to be disloyal to the enterprise. They want to create suspicion and disharmony and pry into the proprietary interests of the business. However this is labelled—industrial espionage, whistle-blowing or professional responsibility—it is another tactic for spreading disunity and creating conflict (Roche, 1971, 445).

The first definition was set forth by Ralph Nader at the beginning of a book which evaluates whistle-blowing positively. Notice that the definition assumes that whistle-blowing springs from an admirable motive: the belief that one is acting on behalf of the higher of two duties. It also assumes that

whistle-blowers hold accurate views about corporate wrongdoing. Thus in two ways it automatically implies a favorable general attitude toward whistle-blowers.

The second passage was written by James M. Roche while he was chairman of the board of General Motors Corporation. It virtually identifies whistle-blowing with motives like disloyalty and a malicious desire to harm the organization.

For the sake of clarity it is preferable to adopt a more value-neutral definition of whistle-blowing, as we have done. Then the evaluative issues can be dealt with on their own merits.

Ernest Fitzgerald and the C-5A

One of the most publicized instances of open, external, whistle-blowing occurred on November 13, 1968. On that day Ernest Fitzgerald was one of several witnesses called to testify before Senator William Proxmire's Subcommittee on Economy in Government concerning the C-5A, a giant cargo plane being built by Lockheed Aircraft Corporation for the Air Force. Fitzgerald, who had previously been an industrial engineer and management consultant, was then a deputy for management systems under the Assistant Secretary of the Air Force. During the preceding 2 years he had reported huge cost overruns in the C-5A project to his superiors, overruns which by 1968 had hit \$2 billion. He had argued forcefully against similar overruns relating to other projects, so forcefully that he had become unpopular with his superiors. They pressured him not to discuss the extent of the C-5A overruns before Senator Proxmire's committee. Yet when Fitzgerald was directly asked to confirm Proxmire's own estimates of the overruns on that November 13, he told the truth.

Doing so turned his career into a costly nightmare for himself, his wife, and his three children (A. E. Fitzgerald, 1972; Peters, 1972, 200). He was immediately stripped of his duties and assigned trivial projects, such as examining cost overruns on a bowling alley in Thailand. He was shunned by his colleagues. Within 12 days he was notified that his promised civil service tenure was a computer error. And within 4 months the bureaucracy was restructured so as to abolish his job. It took 4 years of extensive court battles before federal courts ruled that he had been wrongfully fired and ordered the Air Force to rehire him. And years of further litigation, involving fees of around \$900,000, were required before, in 1981, he was reinstated in his former position.

Fitzgerald displayed remarkable courage at considerable sacrifice to himself. Was he obligated to do what he did? The Code of Ethics for the United States Government Service says that employees should "put loyalty to the highest moral principles and to country above loyalty to persons, party, or government department" and that they should expose "corruption wherever discovered." A coverup of a \$2 billion expenditure of taxpayers' money in contract overruns would seem to qualify as corruption. Is the principle in the

code a morally valid one? We believe it is. The alternative would be to endorse a kind of "organizational egoism" where only the good of one's particular in-group is emphasized.

If we feel any hesitation in saying Fitzgerald was obligated to whistle-blow, it concerns whether it might be asking too much of someone in his position to do what he did. Perhaps it is beyond the call of duty to require such an incredible degree of personal sacrifice in performing one's job. In any case, his acts seem to us admirable to the point of heroism.

Not all whistle-blowing, of course, is admirable, obligatory, or even permissible. Obligations to an organization are significant. As we have suggested, they are not automatically canceled or outweighed by the obligation to the public in all situations. But Fitzgerald's case seems to us clear-cut because (1) he had made every effort to first seek a remedy to the abuses he uncovered by working within accepted organizational channels, (2) his views were well founded on hard evidence, and (3) the harm done to the Air Force by his disclosures was both a just treatment for its mismanagement of the C-5A project and far outweighed by the benefits that accrued to the public. In addition, (4) Fitzgerald was a public servant with especially strong obligations to the public which his organization, the Air Force, is committed to serve, and (5) to have withheld the information from Senator Proxmire would have involved lying and participating in a coverup. In Fitzgerald's case, as is often true, failure to blow the whistle would have amounted to complicity in wrongdoing.

Carl Houston and Welding in Nuclear Plants

In 1970 Carl Houston was working for Stone and Webster, the contractor for a nuclear power facility being constructed in Surry, Virginia. Houston was assigned as a welding supervisor at the facility and immediately saw that improper welding procedures were being used. Wrong materials were being utilized and the welders had not been properly trained. The situation was especially dangerous since some of the defective welds were appearing on the water pipes carrying coolant to the reactor core. Rupture of the pipes could cause disaster if safety backups failed simultaneously.

Houston reported his observations to Stone and Webster's local manager, who disregarded them. When he threatened to write to Stone and Webster's headquarters, he was told he would be fired. He sought to alert the reactor suppliers to the danger, and shortly thereafter he was fired on the trumped-up grounds that he was not qualified for welding. Afterwards he wrote letters to the governor of Virginia and to the Atomic Energy Commission, which were never answered. Finally, two further letters which he wrote to Senators Howard Baker and Albert Gore (from his home state of Tennessee) had an effect. The senators prompted the Atomic Energy Commission to make investigations which confirmed his allegations (Houston, 1975, 25).

Was Houston justified in going outside Stone and Webster with his warn-

ings? In retrospect, perhaps it would have been better for him to try working further within the organization first, for example, by writing to division headquarters. Yet there seems little doubt that his actions in pursuing the matter were highly praiseworthy. Because there was so much at stake—i.e., since the possible consequences in the event of a nuclear plant accident were so disastrous—the obligation to protect the public had a clear priority in this case.

Moral Guidelines to Whistle-Blowing

Under what conditions are engineers justified in going outside their organizations when safety is involved? This really involves two questions: When are they morally *permitted*, and when are they morally *obligated*, to do so?

Richard T. De George has suggested that it is morally *permissible* for engineers to engage in external whistle-blowing concerning safety when three conditions are met (De George, 6):

- 1 If the harm that will be done by the product to the public is serious and considerable;
- 2 If they make their concerns known to their superiors; and
- 3 If getting no satisfaction from their immediate superiors, they exhaust the channels available within the corporation, including going to the board of directors.

In order for the whistle-blowing to be morally *obligatory*, however, De George gives two further conditions (De George, 6):

- 4 He [or she] must have documented evidence that would convince a reasonable, impartial observer that his [or her] view of the situation is correct and the company policy wrong.
- 5 There must be strong evidence that making the information public will in fact prevent the threatened serious harm.

De George sets forth these conditions as rough general rules, something like moral rules of thumb. Exceptions and additions can be made. His account allows for the possibility of instances of permissible whistle-blowing which do not meet all of conditions 1 through 3. For example, situations of extreme urgency may arise in which there is insufficient time to work through all the normal organizational channels. Also, the first condition should be expanded to include violation of rights and fraud.

We should also add that there may be personal obligations to family and others which militate against whistle-blowing. And where blowing the whistle openly could result not only in the loss of one's job but also in being blacklisted within the profession, the sacrifice may in some cases be too much to demand, or may become supererogatory—more than one's basic moral obligations require. Or, what is more likely, anonymous whistle-blowing may be the only morally mandatory action.

Nevertheless, conditions 1 through 5 give strong support to the impor-

tance of engineers' obligations to the public in areas of safety while at the same time allowing for the importance of their obligations to employers by underscoring the need to work first within organizational channels when trying to correct problematic or dangerous situations. And we agree with De George that when all five conditions are met there arises a very strong prima facie obligation to whistle-blow.

George B. Geary and U.S. Steel

We have been focusing upon external whistle-blowing, where information is passed outside the organization. Let us now consider a case of internal whistle-blowing where the information was conveyed within the organization, although outside regular organizational channels.

George Geary had worked 14 years for the U.S. Steel Corporation. In 1967 he was a sales executive with the company's oil and gas industry supply division in Houston. U.S. Steel was about to market a new type of pipe which Geary believed had been insufficiently tested and might be defective. If the pipe should burst or break while in use, not only would property be damaged, but there might be serious injuries to customers and the public.

Geary expressed his strong objections to midlevel management, which decided to go ahead with marketing the new pipe anyway. So, while obeying directives to sell the pipe, he sent his objections to U.S. Steel's higher management. Largely because of his good reputation within the company, top officials took the assertions seriously. They ordered a major reevaluation of the pipe and withdrew it from sales until the tests were completed. Yet shortly thereafter, Geary was fired on the ground of insubordination; the charge was that he went over his manager's head in a matter beyond his area of expertise.

U.S. Steel then attempted to block his unemployment compensation by arguing that he was guilty of willful misconduct. However, the Unemployment Compensation Board of Review, upon hearing the case, reached the following conclusion:

No company places a man in the position held by the claimant and pays him the salary received by the claimant simply to have him quietly agree to all proposals. The claimant did not refuse to follow orders, but, in fact, agreed to do as instructed despite his opposition to the program proposed. Although he may have been vigorous in his opposition and offended some superiors by going to a vice president, it is clear that at all times the claimant was working in the best interest of the company and that the welfare of the company was primary in his mind. Under these circumstances, giving due regard to the claimant's position with the company, his conduct cannot be deemed willful misconduct (quoted in Nader, 1972, 155-156).

It is possible that Geary's actions prevented injuries, reduced consumer costs, and even saved significant costs to U.S. Steel from premature marketing of a defective product. By all the evidence, he acted as a loyal employee, concerned at once for the good of U.S. Steel and of the public. Yet as a result

of communicating information against his immediate superior's wishes, he suffered the same fate as the external whistle-blowers discussed above.

Protecting Whistle-Blowers

The three cases we have examined may seem to present a one-sided, negative picture of what happens to whistle-blowers. Whistle-blowing does not always have such unfortunate results. Yet most whistle-blowers have suffered unhappy, even tragic, fates. In the words of one lawyer who defended a number of them:

Whistle-blowing is lonely, unrewarded, and fraught with peril. It entails a substantial risk of retaliation which is difficult and expensive to challenge. Furthermore, "success" may mean no more than retirement to a job where the bridges are already burned, or monetary compensation that cannot undo damage to a reputation, career and personal relationships (Raven-Hansen, 1980, 44).

Yet the vital service to the public provided by many whistle-blowers has led increasingly to public awareness of a need to protect them against retaliation by employers. Government employees have won important protections. Various federal laws related to environmental protection and safety and the Civil Service Reform Act of 1978 protect them against reprisals for lawful disclosures of information believed to show "a violation of any law, rule, or regulation, mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health and safety" (Raven-Hansen, 1980, 42; Unger, 1982, 94). The fact that few disclosures are made appears to be due mostly to a sense of futility—the feeling that no corrective action will be undertaken. In the private sector, employees are covered by statutes forbidding firing or harassing of whistle-blowers who report to government regulatory agencies the violations of some twenty federal laws, including those covering coal mine safety, control of water and air pollution, disposal of toxic substances, and occupational safety and health. In a few instances unions provide further protection.

Aside from these exceptions, however, most states still allow employers to fire employees they consider "disloyal" at will. There has yet to be full legal recognition of the right of salaried engineers to adhere to professional codes of ethics. But the laws concerning whistle-blowing are in transition, and a number of observers believe they are moving in directions favorable to responsible whistle-blowing (Walters, 1975, 34; Ewing, 1977, 113; Westin, 1981, 163-164; Petersen and Farrell, 1986, 20). Protection of whistle-blowers against unjust firing is being added to many specific laws. It is reasonable to hope that more systematic national legislation will be forthcoming to support responsible whistle-blowers.

We should also add that beyond the protection afforded by law in cases of whistle-blowing, there is an important potential role for professional societies to play. Until recently those societies were reluctant to become involved in supporting engineers who followed the entries in their codes of ethics calling

for members to "notify proper authorities" when overruled by their superiors in their professional judgments about dangers to the public. But this is changing. In the BART case, as we will see in the next section, the Institute of Electrical and Electronics Engineers (IEEE) was willing to write a friend of the court brief seeking to establish legal recognition of the right of engineers to act in accordance with professional codes of ethics. The IEEE has also established awards and other forms of honorary recognition for whistle-blowers who act according to its ethical code, and furthermore has helped locate new jobs for discharged engineers. Another avenue of protection for engineers being explored by professional societies is the publication in their journals of the names of companies who take unjust reprisals against whistle-blowers.

Commonsense Procedures in Whistle-Blowing

It is clear that a decision to whistle-blow, whether within or outside an organization, is a serious matter that deserves careful reflection. And there are several rules of practical advice and common sense which should be heeded before taking this action (Unger, 1979, 56-57; Westin, 1981, 160-163; Elliston et al, 1985, 2 books):

- 1 Except for extremely rare emergencies, always try working first through normal organizational channels. Get to know both the formal and informal (unwritten) rules for making appeals within the organization.
- 2 Be prompt in expressing objections. Waiting too long may create the appearance of plotting for your advantage and seeking to embarrass a supervisor.
- 3 Proceed in a tactful, low-key manner. Be considerate of the feelings of others involved. Always keep focused on the issues themselves, avoiding any personal criticisms that might create antagonism and deflect attention from solving those issues.
- 4 As much as possible, keep supervisors informed of your actions, both through informal discussion and formal memorandums.
- 5 Be accurate in your observations and claims, and keep formal records documenting relevant events.
- 6 Consult colleagues for advice—avoid isolation.
- 7 Before going outside the organization, consult the ethics committee of your professional society.
- 8 Consult a lawyer concerning potential legal liabilities.

The Right to Whistle-Blow

Whistle-blowers who proceed responsibly and take special care to document their views are fulfilling their obligations to protect and serve the public. To this extent they have a professional moral right to whistle-blow. This important right is a restricted one, however, and its appropriate extent can vary depending on a number of factors.

Engineers working for the government have as public servants an espe-

cially strong charge to protect the public. It is appropriate that they have correspondingly strong rights to whistle-blow in the public interest. That right is limited by legitimate needs to keep some information confidential. But not all information stamped "classified" is legitimately confidential. There have been many instances where government corruption has been hidden under claims of confidentiality. The electronic surveillance involved in Watergate is but one example. Moreover, even where legitimate confidentiality is involved, the public interest served by whistle-blowing may be of even greater importance.

Engineers working in the private sector also have obligations to the public, especially those based on the right of the public to make informed decisions concerning the use of technological products. Thus they also have a professional right to whistle-blow when such action is justified by the appropriate conditions. And we along with the observers noted above, hope and believe that the courts and professional organizations will continue to expand the legal and institutional recognition and protection of this right during the coming decade.

Beyond Whistle-Blowing

Sometimes whistle-blowing is a practical moral necessity. But generally it holds little promise as the best possible method for remedying problems and should be viewed as a last resort.

The obvious way to remove the need for *internal* whistle-blowing is to allow greater freedom and openness of communication within the organization. That is, the need to violate the often rigid channels of communication within organizations would be removed by making those channels more flexible and convenient. But this means more than merely announcing formal "open-door" policies and appeals procedures which give direct access to higher levels of management. Those would be good first steps, and a further step would be the creation of an ombudsperson or an ethics review committee with genuine freedom to investigate complaints and make independent recommendations to top management. The crucial factor which must be involved in any structural change, however, is the creation of an atmosphere of tolerance. There must be a positive affirmation of engineers' efforts to assert and defend their professional judgments in matters involving ethical considerations. Any formal policy can be subverted by supervisors who are preoccupied with their own authority or who create a climate of intimidation. It can also be subverted by those engineers who are insensitive to the legitimate needs of management.

Creating such an atmosphere, then, requires the efforts of management and engineers alike. But it falls on the shoulders of top management to give this aspect of the organization equal priority with other organizational needs and goals. Management's tools include the formal ones of classes and workshops for employees. At Fluor Corporation, for example, a course in engi-

neering ethics was an integral part of an in-house masters degree program in engineering which the company financed for its employees. Ultimately, however, it is management's example and style that are decisive in communicating ethical concern to those lower down in the hierarchy. Such concern can be stifled by just one act of inflicting a drastic penalty on an engineer for failing to follow the letter of organizational procedures while zealously pursuing ethical concerns, and it is management's responsibility not to produce such an intimidating atmosphere.

What about *external* whistle-blowing? Much of it can also be avoided by the same sorts of intraorganizational modifications. Yet there will always remain troublesome cases where top management and engineers differ in their assessments of a situation even though both sides may be equally concerned to meet their professional obligations to safety.

To date, the assumption has been that management has the final say in any such dispute. But our view is that engineers have a right to some further recourse in seeking to have their views heard.

It is impossible to generalize concerning what this recourse should be within all contexts. Minimally we think it essential that engineers be allowed to discuss—in confidence—their moral concerns with the ethics committees of their professional societies. And it is highly desirable that representatives from those committees, or perhaps professional arbitrators of some sort, be allowed to enter into discussions between engineers and management which have reached a deadlock—again in confidence, as far as the public is concerned. Such was the purpose of Ralph Nader's short-lived Clearinghouse for Professional Responsibility, which sought to serve as a first-step arbiter to resolve employer-employee conflicts in-house.

Beyond this, ongoing piecemeal changes in the law, within regulatory bodies, and within corporations themselves must be explored. Some will argue for strong legislation favorable to whistle-blowing. But this would allow greater public control over private corporate goals, and management could be expected to resist such outside threats to its autonomy. How far we, as a society, should support laws favorable to whistle-blowing will ultimately be as difficult a decision as any other concerning public regulation of private enterprise.

Study Questions

1 Consider the following example:

Harry works as a designer for a component supplier and often sits in on meetings with clients to keep abreast of their needs. He attends a meeting of corporate executives who decide to phase out a particular component—an encapsulated assembly on which the company is losing money at current production levels. The company will have a new component on the market in six months that not only performs the same functions, but also does additional peripheral functions. It will not be a plug-in replacement for the older component. The client is obviously making a long-term commitment in his design of a system, and the component apparently is key to that system. The client assumes that, in time, when mainte-

nance is required on his system, he will be able to order replacements, if needed. No other company makes a plug-in equivalent of this component. Harry quietly asks the nearest salesman if he is aware that the component is being discontinued, and finds out that the salesmen know its impending fate, but are remaining silent, since the newer component won't be available for six months, and the client is looking to buy something now. If the company doesn't have something to sell him, he'll look elsewhere. What should Harry do? (Perry, 1981, 56-57)

In answering this question assume that Harry's immediate supervisor tells him not to do anything at all.

- 2 Present and defend your view as to whether or not, in the case described below, the actions of Ms. Edgerton and her supervisor were morally permissible, obligatory, or admirable. Did Ms. Edgerton have a professional moral right to act as she did? Was hers a case of legitimate whistle-blowing?

In 1977 Virginia Edgerton was senior information scientist on a project for New York City's Criminal Justice Coordinating Council. The project was to develop a computer system for use by New York district attorneys in keeping track of data concerning court cases. It was to be added on to another computer system, already in operation, which dispatched police cars in response to emergency calls. Ms. Edgerton, who had 13 years of data processing experience, judged that adding on the new system might result in overloading the existing system in such a way that the response time for dispatching emergency vehicles might be increased. Because it might risk lives to test the system in operation, she recommended that a study be conducted ahead of time to estimate the likelihood of such overload.

She made this recommendation to her immediate supervisor, the project director, who refused to follow it. She then sought advice from the Institute of Electrical and Electronics Engineers, of which she was a member. The Institute's Working Group on Ethics and Employment Practices referred her to the manager of systems programming at Columbia University's computer center, who verified that she was raising a legitimate issue.

Next she wrote a formal memo to her supervisor, again requesting the study. When her request was rejected, she sent a revised version of the memo to New York's Criminal Justice Steering Committee, a part of the organization for which she worked. In doing so she violated the project director's orders that all communications to the Steering Committee be approved by him in advance. The project director promptly fired her for insubordination. Later he stated: "It is... imperative that an employee who is in a highly professional capacity, and has the exposure that accompanies a position dealing with top level policy makers, follow expressly given orders and adhere to established policy" (Edgerton Case, 1978).

- 3 According to De George's first criterion for justified whistle-blowing, the product involved must actually be seriously harmful. Critics of this view insist that employees need only have very strong evidence that the product is harmful (James, 1984). What is your view, and why is this issue important?

Also, critics have disagreed with De George's fifth criterion, which says there must be good reason to think the whistle-blowing will bring about necessary changes in order for the whistle-blowing to be obligatory (James, 1984). These critics charge that engineers have obligations to warn the public of dangers quite independently of guessing how the public will choose to react to that information. What is your view?

- 4 A controversial area of recent legislation allows whistle-blowers to collect money. Federal tax legislation, for example, pays informers a percentage of the money re-

covered from tax violators. And the 1986 False Claims Amendment Act allows 15 to 25 percent of the recovered money to go to whistle-blowers who report overcharging in federal government contracts to corporations. These sums can be substantial because lawsuits can involve double and triple damages as well as fines. Discuss the possible benefits and drawbacks of using this approach in engineering and specifically concerning safety matters. Is the added incentive to whistle-blow worth the risk of encouraging self-interested motives in whistle-blowing?

- 5 It has been suggested that cases of whistle-blowing which involve organizational disobedience are similar to instances of civil disobedience (Otten, 1980, 182-186; Elliston, "Civil Disobedience and Whistle-blowing", 1982). Civil disobedience was a major social tactic used, for example, in the civil rights movement in the 1960s. It may be defined as having the following features: It involves the intentional breaking of a law or government policy; it is nonviolent; it is conducted publicly (rather than secretly); it is performed by generally loyal citizens (as opposed to anarchists and revolutionaries) seeking to change what they believe to be seriously immoral laws or government actions; and participants do not attempt to evade the legal penalties attached to such activity.

Discuss the similarities and differences you see between civil disobedience and (a) the open, external, whistle-blowing of Ernest Fitzgerald, (b) the open, internal, whistle-blowing of George Geary, and (c) anonymous whistle-blowing.

- 6 Do you see any special moral issues raised by *anonymous* whistle-blowing? For a helpful discussion consult Frederick Elliston's essay, "Anonymous Whistle-blowing" (Elliston, 1982).
- 7 June Price Tangney, a psychologist at Bryn Mawr College, published a study which showed that "one out of three scientists at a major university suspect a colleague of falsifying scientific data, and half of them have done nothing to verify or report their suspicions. . . . The scientists' unwillingness to act is particularly disturbing because most cases of scientific fraud are uncovered through whistle-blowing" (Associated Press report in *San Francisco Chronicle*, 30 Aug. 1987). Comment on this and related ethical problems in academe. (See also Study Question 8.)
- 8 As member of a committee hearing a student's disciplinary case, a professor finds out that the student has committed fraud outside the campus in another case. Realizing that the university administration will not take any action to notify local authorities regarding this latter case, he notifies the district attorney on his own. The university administration censures the professor for breach of confidentiality. Discuss the ethical implications of the professor's and the university's actions.

THE BART CASE

The Bay Area Rapid Transit System (BART) is a suburban rail system that links San Francisco with the cities across its bay. It was constructed during the late 1960s and early 1970s, and its construction led to a now classic case of whistle-blowing. The case is important because it remains controversial, because it involved a precedent-setting intervention by an engineering professional society, and because it became the subject of the first book-length scholarly study of an instance of whistle-blowing (*Divided Loyalties* by Robert M. Anderson et al., 1980).

Background

The example of the pioneering years of railroading indicates that technological experimentation is usually highly fruitful. For example, early fears about the effects of high-speed travel—of sparks showering the countryside, of animals being frightened by the noise and fast movement—were proven to be unfounded. The benefits to agriculture, industry, and commerce, moreover, were immense. And society learned that to secure those benefits it could live with the loss of forests to railroad ties and fuel, or with the cycle of settlement building and abandonment entailed by the construction of new railroads.

As technological innovation in railroading accelerated, however, the trend to do the fashionable thing for its own sake increasingly predominated. For example, railroads took over in instances where common sense would have dictated the continued use of barges on canals. To some extent BART is a recent example of that trend. Developed to incorporate the latest "space age" technology in its design, it ended up as more expensive and less reliable than its traditional counterparts.

The BART system was built with tax funds, and its construction was characterized by tremendous cost overruns and numerous delays. Much of this can be ascribed to the introduction of innovative methods of communicating with individual trains and of controlling them automatically. In addition, plain fail-safe operation was replaced by complex redundancy schemes. (Fail-safe features simply cause a train to stop if something breaks down; redundancy features try to keep trains running by switching the faulted components to alternate ones.) The rationale given for this approach was that the system could be sold to the public only if it involved glamorous and exciting gadgetry.

Responsibility and Experimentation

The opportunity to build a rail system from scratch, unfettered by old technology, was a challenge that excited many engineers and engineering firms. Indeed, altogether the project was an interesting experiment. Yet among the engineers who worked on it were some who came to feel that too much experimentation was going on without proper safeguards. Safety features were given insufficient attention and quality control was poor, they thought.

Three engineers in particular—Holger Hjortsvang, Robert Bruder, and Max Blankensee—identified dangers that were to be recognized by management only much later. They saw that the automatic train control was unsafely designed. Moreover, schedules for testing it and providing operator training prior to its public use were inadequate. Computer software problems continued to plague the system. Finally, there was insufficient monitoring of the work of the various contractors hired to design and construct the railroad. These inadequacies were to become the main causes of several early accidents (Friedlander, March 1973 and April 1973).

The three engineers wrote a number of memos and voiced their concerns

to their employers and colleagues. Their initial efforts were directed through organizational channels to both their immediate supervisors and the two next higher levels of management, but to no avail. Yet they refused to wait passively for accidents to occur, and resolved to do more.

Up to this point Hjortsvang, Bruder, and Blankenzee clearly displayed the kind of moral responsibility described in Chap. 3. They were conscientious in refusing to lose sight of their primary obligation to the public—that is, their obligation to what was, in effect, the “subject” of this particular engineering “experiment.” They were imaginative in foreseeing dangers. They were personally and autonomously involved. And they were willing to accept moral accountability for their participation in the project.

Of special interest in the case is that for the most part the three engineers were not specifically assigned or authorized by the BART organization to check into the safety of the automatic control system. Hjortsvang, for example, first identified the dangers when he was sent to Westinghouse (a BART subcontractor) primarily to observe, not supervise, the development of the control system. Similarly, Robert Bruder worked for the construction department, not the operations department which had responsibility for the train control. Thus, both engineers looked to the wider implications of the specific tasks assigned them within the organization. They refused to have their moral responsibility confined within a narrow organizational bailiwick.

Controversy

The controversial events that followed as the engineers sought to pursue their concerns further are described and interpreted from the opposing viewpoints of the engineers and management (and others) in the book *Divided Loyalties* by Robert M. Anderson et al. (cited in the Bibliography). Here is an account of five of those events.

First, Hjortsvang wrote an anonymous memo summarizing the problems, and distributed copies of it to nearly all levels of management, including the project's general manager. The memo argued that a new systems engineering department was needed, a department that Hjortsvang had also requested in an earlier signed memo. Distribution of such an unsigned memo was regarded by management as suspicious and unprofessional since it was done outside the normal channels of accountability within the organization. Later, when its author was identified, management decided Hjortsvang was motivated by self-interest and a desire for power since it could be assumed that he wished to become the head of such a department.

Second, the three engineers contacted several members of BART's board of directors when their concerns were not taken seriously by lower levels of management. By doing so, they departed from approved organizational channels, since BART's general manager allowed only himself and his designates to deal directly with the board. Since BART was a publicly funded

organization governed by the public board of directors, it could be argued that this was an instance of internal whistle-blowing.

Third, in order to obtain an independent view, the engineers contacted a private engineering consultant who on his own wrote an evaluation of the automatic train control.

Fourth, one of the directors, Dan Helix, listened sympathetically and agreed to contact top management while keeping the engineer's names confidential. But to the shock of the three engineers, Helix released copies of their unsigned memos and the consultant's report to the local newspapers. It would be the engineers, not Helix, who would be penalized for this act of external whistle-blowing.

Fifth, management immediately sought to locate the source of Helix's information. Fearing reprisals, the engineers at first lied to their supervisors and denied their involvement.

Aftermath

At Helix's request the engineers later agreed to reveal themselves by going before the full board of directors in order to seek a remedy for the safety problems. On that occasion they were unable to convince the board of those problems. One week later they were given the option of resigning or being fired. The grounds given for the dismissal were insubordination, incompetence, lying to their superiors, causing staff disruptions, and failing to follow understood organizational procedures.

These dismissals were damaging to the engineers. Robert Bruder could not find engineering work for 8 months. He had to sell his house, go on welfare, and receive food stamps. Max Blankensee was unable to find work for nearly 5 months, lost his house, and was separated from his wife for 1½ months. Holger Hjortsvang could not obtain full-time employment for 14 months, during which time he suffered from extreme nervousness and insomnia.

The impact on BART, by comparison, was minor. Subsequent studies proved that the safety judgments of the engineers were sound. Changes in the design of the automatic train control were made, but it is unclear whether those changes would have been made in any case. During its decade of development BART was plagued by many technical problems of the type the engineers drew attention to. And the inability of BART management to deal effectively with the engineers' concerns was typical of many other instances of poor management.

Two years later the engineers sued BART for damages in the sum of \$875,000 on the grounds of breach of contract, harming their future work prospects, and depriving them of their constitutional rights under the First and Fourteenth Amendments. A few days before the trial began, however, they were advised by their attorney that they could not win the case because

they had lied to their employers during the episode. They settled out of court for \$75,000 minus 40 percent for lawyers' fees.

In the development of their case the engineers were assisted in their court case by an *amicus curiae* ("friend of the court") brief filed by the Institute of Electrical and Electronics Engineers (IEEE). This legal brief noted in their defense that it is part of each engineer's professional duty to promote the public welfare, as stated in IEEE's code of ethics. In 1978 IEEE presented each of them with its Award for Outstanding Service in the Public Interest for "courageously adhering to the letter and spirit of the IEEE code of ethics."

Comments

The study questions below ask you to assess the extent to which the three engineers and BART's management acted responsibly. The complexities revealed in *Divided Loyalties* show the case is hardly a simple one. Here we wish to comment upon two attitudes held by the authors of that book, attitudes germane to the topic of moral responsibility and deserving of mention because of the frequency with which similar arguments are heard in other contexts.

The authors' final verdict is that the BART case "can be viewed as not really involving safety or ethics to any marked degree" (Anderson et al., 1980, 353). We disagree. The main basis for that verdict seems to be the claim that BART's complex organizational structure alone was to blame for the conflicts which helped precipitate the incidents. For example, the engineers were given considerable freedom to determine for themselves the specific tasks they were to pursue, but granted little authority to implement changes they felt were needed. Frustration on their part was therefore to be expected.

This argument, however, fails to show that ethical issues were not involved. On the contrary, it shows how ethical issues can arise out of problems associated with organizational structure. Indeed, the conflicts engendered by the social, political, and economic settings of an organization quite frequently form the background for the ethical problems engineers confront when concerned about how best to ensure the safety of their projects.

The authors' verdict may also have resulted from a lack of clarity about what an ethical problem is. For they emphasize that there were *no villains* in the BART episode. Those involved were basically good people trying in the main to do their jobs responsibly even if they were influenced to some degree by self-interest. This seems to imply that ethical situations must always involve bad people who are opposed by good people—a melodramatic view of morality. Yet surely the question of how best to assure safety in any engineering project is a moral issue, whatever the ultimate personal motivations of the people involved in it. Ethics can involve a decision between good and better just as much as a conflict between good and bad.

Study Questions

- 1 Present and defend your view as to whether, and in what respects, the BART engineers and BART management acted responsibly. In doing so, discuss alternative courses of action that either or both groups might have pursued. Discuss and apply De George's criteria (from the previous section) for when whistle-blowing is morally permissible and obligatory. Focus especially on (a) Hjortsvang's anonymous memo distributed within BART, (b) the act of contacting BART's board of directors, and (c) lying to the supervisors when questioned about their involvement.
- 2 The authors of *Divided Loyalties* suggest that "management shares with the three engineers responsibility for the political naiveté which permitted them to carry their grievance as far as they did. It is clear that the engineers took a narrow and technical view of the issues which disturbed them, and failed to place them in the context of the whole BART development. At the same time, management fostered this naiveté by failing adequately to sensitize its professional employees to the political and economic climate surrounding and influencing the activities of the organization" (Anderson et al., 1980, 351). Presumably this is a criticism of the act of contacting the board of directors of a public project for which a positive public image is needed to sustain support and continued funding. Do you agree with these authors that political considerations should have entered into the decisions of the three engineers? Or do you agree with IEEE that the engineers acted in a courageous way in trying to protect public safety?
- 3 The following lines are from the play *Sarcophagus* by Vladimir Gubaryev (1987). Based on the playwright's imagination of how Chernobyl's director may have been questioned at the time of the reactor accident, they convey the milieu which is found in many bureaucracies. (The real director and two aides have since been sentenced to 10 years at hard labor; others received shorter terms.)

Investigator: ...And do you know why your predecessor in the job was sacked?

Director: Everybody knows why. He was a troublemaker. Plus four reprimands for failing to reach his output targets.

Investigator: Yet at the station everybody speaks of him with respect. Even with fondness, one might say.

Director: All I know is that the authorities found him difficult to get on with.

Investigator: Of course. Because he didn't always do as he was told. He used to argue decisions, in fact. Incidentally, on the question of putting No. 4 Reactor on-line ahead of schedule—he was dead against it.

Director: That was a matter for decision by higher authority. They're not stupid, the people in the ministry. They know the overall situation and the state of affairs at our station too.

What kind of management style and reporting procedures would you recommend for critical operations which depend on engineers and other technically skilled personnel?

EMPLOYEE RIGHTS

Employee rights are any rights (moral or legal) which have to do with the status of being an employee. They include some professional rights which

apply to the employer-employee relationship: for example, the right to disobey unethical directives and to express dissent from company policies without employer retaliation. Thus the professional rights discussed in the previous section are also employee rights insofar as they relate to the condition of being a salaried professional.

Then too, employee rights include fundamental human rights relevant to the employment situation. In the next section we will discuss one of those: the right not to be discriminated against because of one's race, sex, age, or national origin.

And one group of employee rights are institutional rights created by organizational policies or contracts. For example, an engineer whose negotiated salary is \$40,000 has a contractual right to that amount of money. He or she may also have contractual rights to various company benefits, such as periodic pay raises and profit sharing. These rights are based solely on employment contracts.

However, a different group of employee rights will be the topic of this section. In contrast with purely contractual rights, these exist even if unrecognized by specific contract arrangements or company policies. Companies and employers *ought* to recognize them, whether or not they actually do. For they are more than mere privileges which employers are permitted to disregard.

Ewing's Employee Bill of Rights

In *Freedom Inside the Organization*, David Ewing, editor of *The Harvard Business Review*, refers to employee rights as the "black hole in American rights." The Bill of Rights in the Constitution was written to apply to government, not to business. But when the Constitution was written, no one envisaged the giant corporations which have emerged in our century. Ewing demonstrates compelling parallels between the kinds of threats to liberty posed by large and powerful governments (which the authors of the Constitution sought to protect citizens against) and the kinds of threats to individual freedom posed by present-day business organizations. Corporations wield enormous power politically and socially, and especially over their employees. They operate much as minigovernments, and are often comparable in size to those governments the authors of the Constitution had in mind. For instance, American Telephone & Telegraph in the 1970s employed twice the number of people inhabiting the largest of the original thirteen colonies when the Constitution was written.

Ewing proposes that large corporations ought to recognize a basic set of employee rights. He gives the following concise statement of what those rights should involve:

No public or private organization shall discriminate against an employee for criticizing the ethical, moral, or legal policies and practices of the organization; nor shall any organization discriminate against an employee for engaging in outside

activities of his or her choice, or for objecting to a directive that violates common norms of morality.

No organization shall deprive an employee of the enjoyment of reasonable privacy in his or her place of work, and no personal information about employees shall be collected or kept other than that necessary to manage the organization efficiently and to meet legal requirements.

No employee of a public or private organization who alleges in good faith that his or her rights have been violated shall be discharged or penalized without a fair hearing in the employer organization (Ewing, 1977, 234-235).

In previous sections we discussed some of these rights, such as the rights to free speech and dissent and the right of conscientious refusal to obey unethical directives. Here we will examine several others—in particular, those relating to the choice of outside activities, to privacy, and to due process.

Freedom to Choose Outside Activities

All employees have the right to pursue nonwork activities of their own choosing without coercion or retribution from employers. This is part of their basic human right to pursue legitimate interests without interference. But because this right has generally not been protected by state or federal laws, there have been some flagrant violations of it.

For example, a worker in a Ford Motor Company service department was fired because his supervisor learned he had bought a new American Motors Rambler instead of a Ford automobile. Because he happened to be a union member, he was able to regain his job. Others have not been as lucky and have had to buckle to pressures from employers. Or there is the case of an executive for Phillips Petroleum who stated in a national interview that he did not want to see Phillips employees at competitors' gas stations (Ewing, 1977, 120-121).

Such abuses are perhaps becoming rarer, especially in states like California and Florida which have passed laws prohibiting them. But why, we might ask, would employers make such demands and intrusions into the personal purchasing habits of their employees?

No doubt part of the answer lies in an exaggerated concern for company loyalty. Loyalty comes to be viewed as extending beyond the fulfilling of job functions into areas of personal decision making. A more important part of the answer, however, is the extreme concern companies have to present a unified and untarnished image to the public. Even the slightest or most indirect damage to that image, and to the employers' ability to control the image, is perceived as a threat. One such threat lies in the negative attitudes toward the company that could potentially arise when it is learned by outsiders that employees are not purchasing their own company's products. Yet an employer's rightful concern with the company image should not extend to control over employees' personal buying habits.

Consider a different example. In 1971 IBM fired Lawrence Tate, an engi-

neer employed by that company for over 18 years. Tate had a shining record with IBM and was fired solely because of a certain article that appeared in a local newspaper. The article told of Tate's efforts to reform the police department in his area. It also mentioned his subsequent arrest and conviction on two misdemeanor charges and his daughter's arrest for possession of one marijuana cigarette. The convictions were being appealed, and he was countercharging police harassment. Unfortunately, the article also mentioned Tate's place of employment, and it was this which led to his being fired (D. Fitzgerald, 1980, 197-198).

Perhaps some indirect damage to IBM's reputation resulted from the article. But if this sort of thing can be a legitimate reason for firing an employee, none of us has much genuine freedom. The single act of a careless journalist would be enough to undermine our careers.

What about a corporation's right to protect its public image? Surely this places some limits on the rights of employees to pursue outside activities, in spite of what has been said so far. No simple line can be drawn here, but a few generalizations are possible:

First, the rights of employees to pursue outside activities become limited at the point where those activities lead to violations of the duties connected with their jobs. Here what is actually at stake are not the outside activities per se, but their effects on job-related activities. For example, an individual has the right to abuse alcohol without interference in the privacy of his or her own home even though such conduct may be foolhardy and some people upon learning of it may lower their estimate of the company the person works for. But the employer has a right to take action against the employee if the alcohol abuse begins to damage work performance.

Second, employers have the right to take action when outside activities constitute a conflict of interest. Here there may be no actual harm done, as we saw in Chap. 5. But the potential exists for failure to fulfill duties to the organization and for fostering a public image of tenuous employee loyalty to the company. Employers are plainly within their rights, for example, in requiring a person to stop moonlighting for a competitor's business.

Third, employees have no right to consistently sabotage their employers' interests during off-hours. During labor disputes, a mutual recognition of each other's legitimate interests must be maintained.

In every case, however, we should add, the burden of proof should always fall on the employer to establish that the corporation's interests are so compelling as to take precedence over the rights of its employees.

Right to Privacy

The right to pursue outside activities can be thought of as a right to personal privacy in the sense that it means the right to have a private life off the job. In speaking of the *right to privacy* here, however, we mean the right to control

access to and use of information about oneself. (As with the right to outside activities, this right is limited in certain instances by employers' rights.)

Consider a few examples of situations in which the functions of employers come into conflict with the right employees have to privacy:

1 Before being hired at a computer center which handles large banking transactions, applicants are required to answer questions about their past criminal records while taking a polygraph (lie detector) test.

2 Job applicants at the sales division of an electronics firm are required to take personality tests which include personal questions about alcohol use and sexual conduct. The rationale given for asking those questions is a sociological study showing correlations between sales ability and certain data obtained from answers to the questionnaire. (That study has been criticized by other sociologists.)

3 A supervisor unlocks and searches the desk of an engineer who is away on vacation without the permission of that engineer. The supervisor suspects the engineer of having leaked information about company plans to a competitor and is searching for evidence to prove those suspicions.

4 A sociologist has been hired as a consultant to a large construction firm which has been having personnel conflicts in one division. Without checking with its employees, management gives the sociologist full access to its personnel files.

5 A large manufacturer of expensive pocket computers has suffered substantial losses from employee theft. It is believed that more than one employee is involved. Without notifying employees, hidden surveillance cameras are installed.

6 A rubber products firm has successfully resisted various attempts by a union to organize its workers. It is always one step ahead of the union's strategies, in part because it monitors the phone calls of employees who are union sympathizers. It also pays selected employees bonuses in exchange for their attending union meetings and reporting on information gathered. It considered, but rejected as imprudent, the possibility of bugging the rest areas where employees were likely to discuss proposals made by union organizers.

Some of these examples involve abuse of employer prerogatives. Most of them involve a clash between the right to privacy of employees and the right of employers to effectively manage a corporation. We may differ in our opinions about some of them. But surely such intrusions are morally problematic and stand in need of special justification. Why is it that privacy is so important, even at work, and what is the basis of the right to it?

In order to answer that question it will be useful to postulate an extreme, hypothetical case (Fried, 1970, 138). Imagine a scenario akin to that described in George Orwell's *1984*, a scenario which is feasible with current technology: Unknown to them, all employees in a firm—engineers, skilled laborers, sec-

retaries—have a tiny electronic device implanted in their plastic identification badges. The device emits steady signals indicating the location of the employee carrying it and can be used by a distant monitoring center to record conversations taking place within a radius of 20 feet around it. Why would this situation upset us if we were the employees?

One answer is that we would object to the deception involved. So to focus matters directly on privacy, let us imagine that we are fully informed of the use and nature of the bugging device. We are not asked to give our consent, however, but are told that allowing the device to be used is a condition of our employment. Why would we still object?

A utilitarian philosopher might answer that such a situation would make us unhappy for various reasons. It would lead to a general apprehensiveness about how our every word might be interpreted by those who could hear our conversations. Thus our conversational spontaneity would be inhibited. Certainly the use of such a device would destroy any sense of being trusted by our employer. And it would open the door to innumerable abuses, such as harassment, by those who might have access to what the device recorded or picked up.

A duty ethicist might argue that use of the device would violate the duty to respect people. Respect for people entails allowing them some degree of control over who has knowledge about their personal conversations (Benn, 1971, 8-9; Reiman, 1979, 387). It also means the duty to allow others the pursuit of intimate relationships—friendships, trust-relationships, etc.—would be harmed by the use of such devices (Fried, 1970, 137-152). Intimacy involves selectively revealing information about ourselves which we otherwise keep secret, and revealing it in the belief that it will not be used to harm us. We would not reveal as much if we knew others were listening. And in the work environment, a climate of fear would prevent even the normal jokes between colleagues about bosses which help contribute to comradeship.

Finally, a rights ethicist would appeal directly to the human right of personal freedom: People should be free to maintain some control over what personal information about themselves is revealed to others. Denying anyone this freedom destroys a rich dimension of choice in expressing oneself and developing personal relationships.

The right to privacy is limited by the legitimate exercise of employers' rights to obtain and use information necessary for the effective managing of an organization. These rights make it legitimate to employ aptitude and skill tests related to job functions. But they do not make it legitimate to use general personality and intelligence tests which have not been established as essential for measuring job performance.

Once gathered, information about employees should be reserved solely for legitimate employer use. It is not permissible to give it to outsiders, or even to members of the corporation who do not need to know it. The personnel division, for example, needs medical and life insurance information about employees, but immediate supervisors usually do not. Only the

most routine information about job position and years with the company should be revealed to inquirers from outside the corporation, such as collection agencies, insurance companies, apartment landlords, and private investigators. Such protective procedures can be simply and effectively implemented. IBM led the way years ago in voluntarily initiating such a program, and that program is serving as a model for other corporations (Ewing, 1976, 82).

Employers should be viewed as having the same fiduciary or trust relationship to their employees concerning confidentiality that doctors have to their patients and lawyers have to their clients (Mironi, 1974, 289). In all of these cases personal information is given in trust on the basis of a special professional relationship. Moreover, with rare exceptions involving identification of other parties, employers owe employees the right to examine their dossiers so as to correct outdated or erroneous information.

Due Process

Rights of conscience, free speech, outside activities, and privacy would be of little help to employees were they not given institutional recognition. Institutional recognition includes formal endorsement of the rights, in company policy statements or employment contracts, for example. But it also requires creation of an institutional procedure for protecting those who exercise the rights. Thus, the substantial rights discussed so far imply a right to due process—that is, a right to fair procedures safeguarding the exercise of other rights. The right to due process extends to fair procedures in firing, demotion, and disciplinary actions.

Implementing the right to due process involves two general procedures: First, written explanations are owed to employees who are discharged, demoted, transferred to less enriching work, or in other ways penalized.

Second, an appeals procedure should be established which is available to all employees who believe their rights have been violated. The procedure should be a stable part of the organization, effective, equitable, and efficient. For the sake of both management and employees, it must be easy to use and work quickly, generally yielding a verdict within days after a grievance is filed (Ewing, 1977, 155-174).

Government employees and union members generally have some such procedures available to them, however flawed they may be in practice. Private companies have recently developed a variety of promising procedures, some of which are still largely experimental. Polaroid, for example, has set up a grievance committee composed of members elected by employees. Xerox has a formal employee advisory board. General Electric uses an impartial referee. Some corporations have ombudspersons who hear and investigate complaints.

The power of these various appeals groups and people is limited, but it can be substantial. It is limited because it typically involves making recom-

mentations to top management, without issuing final verdicts binding on management. Binding verdicts, by definition, would remove substantial decision-making authority from management. The ability to issue them would in effect create a new line of management authority. Yet the influence of appeals bodies can be significant: Where employees trust them, an overruling of their decisions by management without very compelling reasons can cause serious personnel problems.

Study Questions

- 1 Early in 1970 a proposal was made to prohibit all non-American-made cars from parking inside the gates of a major American steel production facility. The proposal grew out of the negative impact imported steel products were having on the domestic steel industry. The rule was to apply to all employees, including management (Barry, 1986, 164-165).
Present and defend your view as to (a) whether this proposal should have been approved and (b) whether such issues should be decided by a majority vote among employees or in some other way.
- 2 In 1974 Combustion Engineering required its officers and employees to take lie detector tests. Someone had given confidential information concerning the terms of its nuclear power contracts to the *Wall Street Journal*, and management felt justified in finding out who it was (Ewing, 1977, 131). Explain your view as to whether or not this tactic was justified, or whether it might have been justified depending on further details of the case.
- 3 Explain and defend your views concerning examples 1 through 6 in the above section on the right to privacy. Was management in each case justified in doing what it did? Can you formulate any general guidelines on the basis of the examples?
- 4 Some observers have argued that employees have a right to choose the type of clothing and hairstyles they wear to work. The courts, however, have ruled that employers have the right to set reasonable standards, specifically in instances where corporate image and job function are affected. Discuss this issue, defending your own view by reference to utilitarian, duty-based, or rights-based ethical theories.
- 5 The chairman of the board of directors of a company whose main business comes from government military contracts sends a letter to all employees. The letter, written on company stationery, outlines why it is clearly in the interests of the company that a certain promilitary senator be elected. The letter concludes by stating that while no employee is required to make a campaign donation to the senator, those wishing to do so can have the donation deducted from their next paycheck. Is there anything objectionable about this? Are any rights infringed?
- 6 Consider the following example:

Several top executives of a company in a large city are disturbed by community activist organizations that are protesting the treatment of minority groups. The executives feel that the activists, while abstaining from violence, are doing more harm than good to the schools, urban renewal programs, public transportation, and retail business. The chief executive himself has articulated his fears about the activists at local business meetings. However, a young... [engineer working for

the company] thinks that the activists are on the right track. He goes to work for the leading activist organization, spending many evening and weekend hours doing unpaid volunteer tasks. Occasionally he is quoted in the newspaper and identified with the employer company (Ewing, "What Business Thinks about Employee Rights," 31).

Does the engineer have a right to continue his activities without interference from the employer? Or do the executives have a right to tell him to stop the activities or else be fired?

DISCRIMINATION

Perhaps nothing is more demeaning than to be downgraded for one's sex, race, skin color, age, or religious outlook. These aspects of biological makeup and basic conviction lie at the heart of self-identity and self-respect. Such downgrading is especially pernicious within the work environment, for work is itself fundamental to a person's self-image. Accordingly, human rights to fair and decent treatment at the workplace and in job training are vitally important.

Yet there are challenging moral issues concerning those rights. One concerns the role of government. Should government and the law be used within private enterprise to oppose discrimination? Or do corporations have the right to hire whomever they please in the search for profits and economic efficiency?

A second set of issues concerns the appropriate extent of the right to non-discrimination. For example, do women and minorities who in the past have been discriminated against have the right to be given preferential treatment in entrance to educational programs, in hiring, and in job retention? Or does such preference violate the right to equal opportunity enjoyed by members of majority groups and thus itself constitute discrimination "in reverse"?

These issues are of significance to engineers. Traditionally, engineering in the United States has been one of the more open avenues for upward mobility of capable but otherwise disadvantaged persons. Partly this has to do with the willingness of engineers to recognize talent where they see it, partly it is the result of government-mandated fair employment practices which must be observed by employers engaged in government contracts. But in times of economic downturns the influx of women, racial minorities, and foreign nationals into the engineering workforce can produce unfavorable reactions. Should there be any conflicts, engineers must carefully examine the ethical bases of their and their colleagues' actions.

Examples

Consider the following examples:

1 An opening arises for a chemical plant manager. Normally such positions are filled by promotions from within the plant. The best qualified per-

son in terms of training and years of experience is a black engineer. Management believes, however, that the majority of workers in the plant would be disgruntled by the appointment of a nonwhite manager. They fear lessened employee cooperation and efficiency. It is decided to promote and transfer a white engineer from another plant to fill the position.

2 Several women engineers work in the sales division of an electronics company. The company prides itself on the practice of hiring proportional numbers of women. Yet the pay scale for these women is systematically lower than that for men having comparable experience and engaging in comparable work. In the absence of objections, management assumes that the women recognize the necessity to pay males more because they are the primary breadwinners for their families.

3 A farm equipment manufacturer has been hit hard by lowered sales caused by a flagging produce economy. Layoffs are inevitable. During several clandestine management meetings, it is decided to use the occasion to "weed out" some of the engineers within 10 years of retirement in order to avoid payments of unvested pension funds.

Definition

The word "discrimination" is used in several senses. Sometimes it means preference on the grounds of sex, race, etc., whether or not such preference is viewed as justified. In everyday speech, however, it has come to mean *morally unjustified treatment of people on arbitrary or irrelevant grounds*. We will use the word in this latter sense. Thus to call something "discrimination" is to condemn it. Where the question of justification is left open for discussion, we will speak of *preferential treatment*.

Most of us would agree that the preceding examples involve discrimination. They also involve violation of antidiscrimination laws. Let us review some of these laws before inquiring into whether they are morally warranted.

Antidiscrimination Laws

The forerunner of antidiscrimination laws was the principle of equality which the Fourteenth Amendment embedded in the Constitution following the Civil War (1868):

No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

But it was only as recently as 1964 that discrimination by public or private employers was explicitly prohibited legally in the Civil Rights Act:

It shall be an unlawful employment practice for an employer to fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual

with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, or national origin (Title VII—Equal Employment Opportunity).

The Equal Employment Opportunity Act of 1972 amended and strengthened the Civil Rights Act by giving greater powers of enforcement to the Equal Employment Opportunity Commission.

Several supporting Executive Orders, having the force of law, were issued under Presidents Kennedy and Johnson. They required that businesses receiving government contracts develop affirmative action programs to remedy underrepresentation of women and minorities on their staffs. "Underrepresentation" usually meant that the percentage of women and minority workers hired for a given type of job did not roughly parallel the percentage of those available locally to be hired.

As originally mandated, affirmative action programs had a dual emphasis. On the one hand, they sought to increase the number of women and minority applicants for jobs and professional education. This was to be accomplished largely through wide advertising of the positions and opportunities involved, assuring applicants that they would be considered on a nondiscriminatory basis. On the other hand, the programs called for setting concrete goals for hiring, including timetables for achieving racial or sexual job parity. Explicit numerical quotas, however, were not endorsed. Reaching those goals usually meant hiring women and minorities over equally qualified white males. In practice, government pressure also sometimes led to giving them preference over better-qualified white males, although this was not justified by the law.

Finally, age discrimination was prohibited by the Age Discrimination in Employment Act of 1967, amended in 1974. That act states:

Sec. 4. (a) It shall be unlawful for an employer—(1) to fail, or refuse to hire or to discharge any individual or otherwise discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's age;

(2) to limit, segregate, or classify his employees in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's age (quoted in *Seti*, 1977, 334).

Moral Justification of Nondiscrimination Laws

The equal opportunity laws forbid the kinds of discrimination involved in the examples given earlier. But are they morally justified? Should the government be allowed to use law to force private corporations to treat people equally?

The libertarian (or conservative free market) position answers these questions in the negative. It argues that government should not meddle in private economic dealings except where necessary to protect contracts and free com-

petition. According to this view, all fair employment legislation is unjust. As Milton Friedman wrote in *Capitalism and Freedom*: "Such legislation clearly involves interference with the freedom of individuals to enter into voluntary contracts with one another" (Friedman, 1962, 111). Forcing a grocer to hire a black clerk in a neighborhood which hates blacks is, he says, unfairly hurting the grocer's business. In general, fair employment legislation lessens economic efficiency and violates the right of businesses to hire whomever they please.

Friedman adds that he personally finds racism and sexism deplorable. But he regards this merely as his personal preference, and insists that neither he nor the majority has a right to force their preferences on others. "It is hard," he writes, "to see that discrimination can have any meaning other than a 'taste' of others that one does not share" (Friedman, 1962, 110).

Friedman denies there are moral rights bearing on employment which are not reducible to contracts and to the conditions which make contracts possible. In our view this is a serious mistake. It is not a mere personal preference to condemn racist and sexist practices. Laws forbidding prejudicial employment practices are not a matter of a majority imposing its tastes on others. For those laws protect the basic moral rights everyone possesses to have a fair opportunity of working to obtain social benefits.

Those rights are not absolute in the sense that nothing could ever override them. Presumably if utter economic disaster resulted from recognizing them, they might have to be somewhat restricted for a time. But it is simply not true that fair employment legislation has drastically disrupted the economy. The laws have placed some new restrictions on the exercise of the economic right to pursue profits. But the vital importance of being able to pursue work and careers without crippling interference from discriminatory practices seems a sufficient reason to justify such restrictions.

Let us now turn to the issues surrounding reverse preferential treatment. These are more troublesome because at least on the surface preferential treatment is a violation of the very concept of equality used to condemn past racist and sexist practices.

Preferential Treatment

Hiring a woman or a member of a minority over an equally qualified white male is only one form of reverse preferential treatment. Let us call it the *weak* form. The *strong* form, by contrast, consists in giving preference to women or minorities over better-qualified white males. The strong version, of course, is the more highly controversial one. It is one thing to give preference by tipping an equally balanced scale. It is quite another to load the scale from the outset. The following discussion is focused upon strong preferential treatment, as are most current debates over reverse discrimination.

Reverse discrimination, as we shall define it, occurs when preference is given to a member of a group which in the past has been the object of dis-

crimination. Typically this occurs when preference is given to a woman or a member of a previously downgraded minority at the expense of a white male. The question is whether or not it is unfair or otherwise unjust to give preference to some less-qualified women or minorities.

The Bakke Decision Reverse discrimination in regard to education received national attention at the time of the Supreme Court's 1978 Bakke decision. Allan Bakke, a white engineer, was twice denied admission to the medical school at the University of California, Davis. His grades and scores on entrance exams were significantly higher than those of most of the minority students admitted under a special admissions program. Of one hundred openings, the program reserved sixteen for Blacks, Chicanos, Asians, and American Indians. Minority applicants for those sixteen positions were judged only against each other, and not by comparison with applicants for the other, unreserved openings. Bakke went to court, charging that he had been unfairly discriminated against in violation of the Civil Rights Act.

The University of California at Davis attempted to defend its special admissions program on four grounds: (1) it increased the number of minorities in the medical profession; (2) it countered the bad effects of past racial discrimination; (3) it increased the number of physicians likely to serve in inner cities and other areas underserved medically; and (4) it created a mixed student body, which in turn widened the educational benefits available to students thus exposed to a greater intellectual and social diversity.

In a split vote (5 to 4), the Supreme Court ruled that the first three grounds did not justify treating candidates differently because of race. It also ruled, however, that the last ground—the educational importance of a mixed student body—did justify counting race as one relevant consideration in screening candidates.

Nevertheless, it agreed that the U.C. Davis quota system unfairly discriminated against Bakke and other whites. For by reserving certain positions for minorities, the Court argued, it prevented complete comparisons being made among all applicants. Thus Bakke won his case and was allowed to enter the medical school (and has since then been graduated).

The Weber Decision One year after the Bakke case, the Supreme Court made a ruling which to some people has seemed incompatible with both the Civil Rights Act and the Bakke condemnation of quota systems. The second case concerned a job-training program at the Gramercy, Louisiana, plant of Kaiser Aluminum and Chemical Corporation. The area surrounding Gramercy has a 40 percent black population. Yet only a small number of skilled crafts workers at the Kaiser plant were black. This was due to the unavailability of skilled black workers, not to any policy of discrimination at the Kaiser plant.

In 1974 Kaiser and the United Steelworkers of America entered into a collective bargaining agreement to give preference to black applicants for job-training programs. Half the positions in these programs were to be reserved

for black workers. In addition, a previous eligibility requirement of work experience was abolished. Seniority counted for admission to the programs, but two separate seniority lists were formed, one for black and one for white workers. This policy of preferential treatment was to continue until the percentage of skilled black workers employed by the plant was roughly equal to 40 percent of the skilled work force.

That same year Brian Weber, a white worker, was denied entrance to one of the programs. Weber had worked at the plant since 1969 and had more seniority than some of the black workers admitted. He filed a class action suit against Kaiser, alleging a violation of Title VII of the Civil Rights Act.

A literal reading of the Civil Rights Act would condemn the Kaiser job training program:

It shall be an unlawful employment practice for any employer, labor organization, or joint labor-management committee controlling apprenticeship or other training or retraining, *including on-the-job training programs*, to discriminate against any individual because of his race, color, religion, sex, or national origin in admission to, or employment in, any program established to provide apprenticeship or other training [42 U.S. Codes 2000e-2 (d) (1970), emphasis added; quoted in C. Cohen, 1981, 375].

Yet the Supreme Court ruled that the literal reading was not the correct one. The justices wrote, "It is a 'familiar rule, that a thing may be within the letter of the statute and yet not within the statute, because not within its spirit, nor within the intention of its makers.'" They contended that the intent of both the Civil Rights Act and the Kaiser program was to eliminate traditional patterns of racial segregation and inequality, and on that basis ruled against Weber (443 U.S. 193 [1979]).

Let us now sketch a few of the main arguments used to justify strong preferential treatment of women and minorities, then some used to prove that it is unjustified and should be considered in effect "reverse discrimination."

Arguments For A rights-ethics argument favoring strong preferential treatment emphasizes the principle of compensatory justice: Past violations of rights must be compensated, where possible "in kind." Taking property from others minimally requires returning it. Similarly, members of groups who have suffered job discrimination in the past are owed special advantages in obtaining jobs today. Ideally such compensation should be given to *individuals* who in the past were denied jobs. But the costs and practical difficulties of determining such discrimination on a case by case basis through the job-interviewing process and the legal system force a more global approach. Preference, therefore, is to be given on the basis of membership in a group which has been disadvantaged in the past.

Those utilitarians who favor preferential treatment have additional arguments. They point to the importance of integrating women and minorities into the economic and social mainstream. Only thus can the benefits of har-

mony between the races and sexes be achieved. And only thus can our society benefit from the resources of individuals whose potential has been negated in the past. Given the central role work plays in building self-identity and self-esteem, in allowing people to develop their resources to the greatest extent possible, and in providing role models, therefore, preferential treatment in job hiring is seen as the best way to attain these goals.

Arguments Against There are also forceful arguments against strong preferential treatment. Such preference, it can be argued, is a straightforward violation of other people's rights to equal opportunity. Just as the rights of minorities and women to such equality were regularly violated prior to enactment of the Civil Rights Act, the rights of white males are now being violated whenever their job qualifications are disregarded because of their race and sex. In general, the argument goes, whatever made discrimination against disadvantaged groups unfair in the past also makes such "reverse discrimination" unfair in the present.

Opponents of preferential treatment for minorities often grant that past violations of rights may call for compensation. But they view general policies of hiring the disadvantaged at the expense of equally or even better qualified white males as an improper way of providing that compensation. Most white males have not themselves participated in discriminatory job actions, and to ignore their rights to fair employment opportunity amounts to compensating victims by punishing the innocent. Two wrongs cannot make a right.

Thus blanket compensation to all members of a group, it is argued, should be given at most in the form of special early education and social programs designed to provide the necessary training to yield a fair opportunity later in applying for jobs or professional schools. Even here, however, economically deprived whites should not be excluded from participation.

Utilitarians who are against strong preferential treatment have additional arguments. They say that the harm such policies do goes beyond that involved in violating the job rights of white males. For example, there is the intense resentment generated among white males and their families. Those feelings only intensify racial tensions and ultimately work against the goals of integration. Moreover, preferential treatment subtly but insidiously encourages traditional stereotypes: A sense of inferiority may arise in women and minorities who come to feel they cannot make it on their own without special help. Finally, there is the economic harm that results from a policy of not consistently hiring the best qualified person.

Intermediate Positions Recently various attempts have been made to develop intermediate positions sensitive to all the above arguments for and against strong reverse preferential treatment. Two of these will be mentioned here.

The first rejects all blanket preferential treatment of special groups as inherently unjust and a violation of the right to equal treatment of other groups

not so treated. Hiring by competence is seen as vital to the well-being of society. Yet the principle of compensatory justice as applied to individuals is also vitally important. If it can be shown that a given company has discriminated against specific individuals, then that company is obligated—and should be required—to give the next available jobs to those individuals. It is true that this might involve discrimination against other, perhaps better-qualified, applicants for those jobs. But the principle of compensatory justice, so the argument goes, in effect automatically closes new jobs to any further applicants beyond the individuals previously discriminated against (Goldman, 1979, 120–127).

In contrast, the second view seeks to justify preferential treatment of special groups. It contends that racist and sexist attitudes are still widespread, at least at a visceral or gut level. Mere affirmative action programs are not sufficient to counterbalance the subtle impact of these attitudes on employment practices. The only adequate way to provide such a counterbalance is to allow and encourage strong preferential treatment. Admittedly some violations of other people's rights to equal employment opportunity will occur in the process, at times with tragic results. But that is the necessary evil we must live with to remedy the deeper tragedy resulting from racism and sexism (Beauchamp, 1983, 625–635).

These two intermediate views, together with the preceding pro and con arguments, make it clear that the issues surrounding strong preferential treatment are subtle and complex. Compelling arguments exist on both sides. In resolving the issue, rights ethicists must identify a reasoned perspective from which to weigh rights to equal treatment against rights to compensation. Duty ethicists must balance duties to treat people equally with duties to provide compensation for past wrongs. Utilitarians must struggle to find a proper way to sum up the positive and negative consequences that can result from such policies. And since nearly all of us will at some time or other be involved in a situation involving preferential treatment, each of us individually needs to find a way to balance these considerations in a carefully reasoned manner.

Sexual Harassment

Sexual harassment is a particularly invidious form of sex discrimination, involving as it does not only the abuse of gender roles and work-related power relationships, but the abuse of sexual intimacy itself. The following discussion focuses on the most widespread type of sexual harassment: male harassment of females. And in regard to the field of engineering, the female may be an engineer, a technician, or a secretary, and the male may be, for example, an engineer-manager or an engineer-colleague.

The term "sexual harassment" is currently applied to a wide variety of physical and psychological attacks, coercion, and sexual practices. One definition of it as applied to women is: "any sexual oriented practice that en-

dangers a woman's job—that undermines her job performance and threatens her economic livelihood" (quoted by Backhouse, 1981, 32). Another definition is: "the unwanted imposition of sexual requirements in the context of a relationship of unequal power" (MacKinnon, 1978, 1).

Sexual harassment may come in many forms: (1) Following an interview for a job as a secretary, a woman is told that the job is hers if she is willing to grant sexual favors to the interviewer. (2) A woman is told by her superior that she will have first priority for receiving a promotion if she is "nice" to him, and talk of a motel makes it clear what is meant by the term "nice." When she refuses to be that "nice," she is not given the promotion and thereafter is assigned less challenging work. (3) Against her will, a woman is grabbed and kissed by her employer, who had asked her to stay after hours at work. She resists and is fired the following day. (4) A woman turns down her boss's request for a date. She makes it clear she is not interested in going out with him ever, but to her chagrin he continues repeatedly to ask her out during the following weeks. (5) The male colleagues of a woman continually leer at her and make sexually suggestive comments about her clothing and body. (6) A male engineer enjoys telling his secretary about his sex life, disregarding her protests against hearing about it.

Although there is evidence that sexual harassment is a widespread and serious problem, the courts have only recently begun to take action. Since 1976 there have been a series of rulings which recognize at least two forms of sexual harassment as instances of sex discrimination prohibited by the Civil Rights Act: first, where a supervisor requires sexual favors as a condition for some employment benefit (a job, promotion, raise); second, where there is job-related retaliation by an employer or supervisor when a sexual request is refused. However, a third, more prevalent, form of sexual harassment has yet to be given serious attention in court rulings: that is, where the harassment functions as part of the everyday work environment among coworkers—for example, in situations where women must put up with repeated, unwanted sexual proposals or lewd comments (MacKinnon, 1978, 57–82).

What is morally objectionable about sexual harassment at the workplace? Any answer must take into account the generally inferior economic status of women. Such harassment takes advantage of that condition, and it is no surprise that it is directed mostly toward secretaries, clerical workers, and other low-paid female workers. As with rape, sexual harassment is a display of power and aggression through sexual means. Accordingly it has appropriately been called "dominance eroticized" (MacKinnon, 1978, 162).

Insofar as it involves coercion, sexual harassment constitutes an infringement of one's autonomy to make free decisions concerning one's body. But whether or not coercion and manipulation are used, it is an assault on the victim's dignity. In abusing sexuality, such harassment degrades people on the basis of a biological and social trait central to their sense of personhood.

Thus a duty ethicist like Kant would condemn it as violating the duty to treat people with respect, to treat them as having dignity and not merely as

means to personal aggrandizement and gratification of one's sexual and power interests. A rights ethicist would see it as a serious violation of the human right to pursue one's work free from the pressures, fears, penalties, and insults that typically accompany sexual harassment. And a utilitarian would emphasize the impact it has on the victim's happiness and self-fulfillment, and on women in general.

Study Questions

- 1 Present and defend your view as to (a) whether or not weak preferential treatment of minorities is ever justified; (b) whether or not strong preferential treatment of minorities is ever justified; (c) whether or not government intervention in the form of enforcing laws like the Civil Rights Act is morally justified.
- 2 In the early 1960s Motorola screened some 20,000 job applicants each year. In order to increase the efficiency of the hiring process and decrease the costs of screening, the company administered a 5-minute technical test. The Illinois Fair Employment Practices Commission charged that the test was discriminatory against black applicants. Consider the following facts known about the test: (a) The same test was used for both whites and blacks, but the score considered passing was based upon an original test-standardization group which was predominantly white. (b) There was a proven correlation between general technical ability and high scores on the test. (c) While the test was felt to be a generally reliable indicator for technical trainability, it was known that at least some qualified applicants had been ruled out on the basis of their scores after taking it. (d) There was no evidence either way concerning whether job performance of blacks was more erroneously predicted by results of the test than job performance of whites (Garrett, 1968, 47-50).

Would any of these facts show the test to be unfairly discriminatory? What further facts would be relevant in determining the answer to this question?

- 3 While engineering remains one of the most male-dominated professions, strong efforts have been made to encourage women to enter it. About 14 percent of entering engineering classes are composed of women. The salaries of beginning women engineers are on the average slightly higher than those of men (Vetter, 1980, 29-30). Yet women engineers are often subjected to greater pressures than males, both in school and on the job (Davies, 1981, 32). Discuss why you think that is so and what might be done about it.
- 4 Imagine two applicants for a construction supervisor's position. One is a 55-year-old white male engineer. The second is a 30-year-old white male engineer. Both have sufficient professional credentials for the job, but the younger man has fewer years of work experience. The 30-year-old man is hired.

Redescribe the example more fully (without contradicting the given information) in a way that would make it evident that unfair age discrimination was involved in the hiring decision. Then embellish on the example once more (again without contradicting the facts as given) in a way which would indicate that the correct choice was made in a nondiscriminatory way.

- 5 A company advertises for an engineer to fill a management position. Among the employees the new manager is to supervise is a woman engineer, Ms. X, who was told by her former boss that she would soon be assigned tasks with increased responsibility. The prime candidate for the manager's position is Mr. Y, a recent immigrant from a country known for its confining roles for women. Ms. X was alerted

by other women engineers to expect unchallenging, trivial assignments from a supervisor with Mr. Y's background. Is there anything she can and should do? Would it be ethical for her to try to forestall the appointment of Mr. Y?

SUMMARY

Salaried engineers have several overlapping types of moral rights:

- 1 Human rights—possessed by virtue of being people or moral agents
 - Examples:
 - Fundamental right to pursue legitimate interests
 - Right to make a living
- 2 Professional rights—possessed by virtue of being professionals having special moral responsibilities
 - Examples:
 - Basic right of professional conscience (the right to exercise professional judgment in pursuing professional obligations)
 - Right to refuse to engage in unethical activity
 - Right to express one's professional judgment, including the right to dissent
 - Right to warn the public of dangers
 - Right to fair recognition and remuneration for professional services
- 3 Employee rights—rights which apply or refer to the status of employees
 - a Contractual—arising solely out of an employee contract
 - Example: Right to receive a salary of a certain amount
 - b Noncontractual—existing even if not formally recognized in a contract or company policy
 - Examples:
 - Right to choose outside activities
 - Right to privacy and employer confidentiality
 - Right to due process from employer
 - Right to nondiscrimination and absence of sexual harassment at the workplace

Professional and employee rights can be justified by reference to ethical theories. For example, a rights theory would derive the right of professional conscience from a fundamental human right to pursue legitimate interests, where such interests include moral obligations. A duty theory might appeal to the fundamental human duty employers have not to harm others (e.g., the public) by handicapping engineers seeking to meet their professional obligations. A utilitarian theory would argue that the greatest good is promoted by allowing engineers to pursue their obligations. In general, the importance of professional *duties* means that the importance of the *right* to meet those duties must be recognized.

Whistle-blowing most often means intentionally conveying new information outside approved organizational channels or against a supervisor's orders

with the aim of drawing attention to a significant moral problem. In *external whistle-blowing* the information is passed outside the organization, while in *internal whistle-blowing* it is conveyed to someone within the organization. In *open* whistle-blowing the whistle-blowers identify themselves, while in *anonymous* whistle-blowing they do not.

Whistle-blowing concerning safety is morally *permissible* in those situations where the problem involved is serious and the whistle-blowers have first made reasonable attempts to warn others about it through regular organizational channels. It is (*prima facie*) morally *obligatory* where, in addition, those blowing the whistle are certain they could convince reasonable observers that their views are right and company policy wrong and where there is strong evidence that going public with their information will lead to positive remedies. While in the past the fate of whistle-blowers has usually been unhappy, current laws, government policy, and responsible management are moving in the direction of an increased recognition of a limited whistle-blowing right.

Both employee rights and professional rights must be subordinate in some respects to the rights of employers to promote company interests. For example, the right to privacy is limited by the need employers have to acquire relevant information about employee skills. But not just any company interest can override employee rights. This is especially clear in regard to the right not to be discriminated against because of sex, race, age, or religion.

Contemporary disagreements over how to deal with discrimination center on the issue of reverse preferential treatment. *Weak preferential treatment* involves giving an advantage to members of traditionally discriminated-against groups over equally qualified applicants who are members of other groups. *Strong preferential treatment* involves giving preference to minority applicants or women over better-qualified applicants from other groups. Arguments for and against such treatment focus on the right to equal employment opportunity, the right to receive and duty to give compensation for past wrongs, and the best way to achieve social integration.