

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?"⁵³

5 Discuss rules on gifts and bribery in the light of prudential ethics (e.g., defensive measures to protect one's self-interest). Distinguish the positions of the employee, the employer, and the public.

OCCUPATIONAL CRIME

Occupational crimes are illegal acts made possible through one's lawful employment (as opposed, say, to the illegal "work" of the "professional" bank robber).⁵⁴ It is the secretive violation of laws regulating work activities. When committed by office workers or professionals, occupational crime is called "white-collar crime."

Many occupational crimes are special instances of conflicts of interest, especially when the crime involves personal gain that constitutes or leads to the failure to meet professional obligations. We have already discussed such cases as misusing insider information. Yet occupational crime can take other forms, including crimes that are aimed at promoting the interests of one's employer rather than oneself.

Moreover, occupational crime deserves further attention because of its frequency and magnitude, as well as because of the increasing public attention paid to it. Employee theft is a type of occupational crime when it is associated with an employee's assigned tasks. It has been estimated to add up to dollar amounts exceeding those of all street crimes combined. That estimate may seem implausible. Think, however, of how just a few individuals like Ivan Boesky and Michael Milken made hundreds of millions of dollars by engaging in illegal insider trading and fraudulent stock manipulation. In 1986 Boesky was fined \$100 million, which his criminal earnings made it easy for him to pay, and he was sentenced to three years in prison. Milken was fined \$200 million and in addition \$400 million in restitution to victims, but despite such sums he remained a very wealthy person. Such well-publicized incidents have increased public concern about white-collar crimes, which generally lead to far less severe penalties than those of petty thieves, although the former have a far greater impact.

This section presents examples of three types of cases: industrial espionage, price fixing, and endangering lives. The cases are offered as further exploration of the central themes in this chapter: professionalism, loyalty, conflicts of interest, and confidentiality.

Industrial Espionage

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

Several factors contributed to make the Valley an ideal environment for industrial espionage. First, the development of computer chips is intensely competitive and fast-paced. Innovation is so rapid that products are often outdated within two 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 that can be offered at a lower price because development costs are less or nonexistent. Even greater savings are possible by illegally acquiring design information from competitors.

Third, computer chips and some of 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 1978.⁵⁵ 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 that enabled him to buy and sell competitors' secrets.

One contact was James Catanich, a skilled electronics draftsman who worked for Peter Gopal on a moonlighting basis in addition to his regular job at National Semiconductor Corporation. Gopal lent 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 that lacked comparable security. NBK kept chip "reticles," the palm-sized glass plates that 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, a 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 twenty-seven reticles for a recent Intel chip and assorted items 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 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 because of not having to beat the competition with low bids.

The most famous violation of the Sherman Act in the electric power industry was prosecuted in 1961.⁵⁶ Forty-five individuals from twenty-nine corporations pled guilty or entered pleas of *nolo contendere* ("no contest," a plea that allows for some face-saving).

Top officials of Westinghouse, General Electric, and other manufacturers were indicted for conspiring to fix prices of large electrical apparatus, although their presidents were evidently kept ignorant of the conspiracy. 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 thirty 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, and one was president of the local chamber of commerce. What could motivate such otherwise decent citizens to break the law?

A surprising number of defendants 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 antitrust 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.⁵⁷

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."⁵⁸

Endangering Lives

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

law, which allows them to gain compensation (beyond workers' 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 (a debilitating lung disease) and mesothelioma (an incurable cancer). For three decades it concealed this information from workers and the public who had a right to be asked for informed consent to the dangers confronting them. In 1949 Manville's company physician defended the corporation's policy of not informing employees diagnosed with asbestosis. He stated: "As long as the man feels well, is happy at home and at work and his physical condition remains good, nothing should be said."⁵⁹ 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.

Between 1940 and 1979, over 27 million U.S. workers were exposed to asbestos. Asbestos-related diseases can develop after only two to three months of exposure. About 350,000 persons will develop mesothelioma and more than 1 million will develop nonmalignant asbestos diseases.⁶⁰ More than 100,000 have already died.

It seems doubtful that many, if any, of Manville's managers 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 protection under bankruptcy in 1982. By 1994, at least sixteen other asbestos defendant companies had declared bankruptcy. A court agreement reached in 1985 allows Manville to continue operating while paying some \$2.5 billion in lawsuits over the next 25 years. Twenty more companies have recently settled class-action suits. The total litigation cost to U.S. companies is an estimated \$7 billion.

The year 1985 also saw a highly unusual court verdict in a different case. For the first time in U.S. history, a judge convicted three officials of a company for industrial murder. Film Recovery Systems was a small corporation that 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 against 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 contin-

ued 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 that 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."⁶¹ 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 particular, which cases involved disloyalty by employees toward their companies, disloyalty by employers to their employees, and misguided loyalty by employees to their companies?
- 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 purposeful avoiding of truths that are painful to recognize.⁶² 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?

Also, identify and discuss rationalizations that in other kinds of cases help make occupational crime easier, such as employee thievery on the grounds that "the company can afford it" and "I am underpaid." Can such rationalizations morally excuse or justify occupational crime?

- 7 Discuss the pros and cons of these methods of deterring occupational crime among professionals: (a) occupational disqualification—on conviction of fraud, revoke the license and the right of an individual to practice his or her profession; (b) stiff prison sentences; (c) public shaming—print the names of offending individuals and companies in professional magazines.
- 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? The main objection to polygraphs is their inaccuracy, but suppose they were 99 percent accurate. Would they then be acceptable in deterring and detecting crime?
- 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.
- 10 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. 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?

SUMMARY

Loyalty and collegiality are essential aspects of team-work in engineering. Agency-loyalty to companies consists in meeting one's obligations to employers, while identification-loyalty is doing so from a sense of personal identification with the company. That identification may be highly desirable, though not necessarily obligatory, when it strengthens commitment to worthwhile goals. In other circumstances it is misguided and harmful. The same is true of collegiality, which implies respect for peers, shared commitment to projects, cooperation, and a sense of connectedness with other people involved in projects.

In our view, the duty of engineers to the public is paramount. 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.

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 di-

rectives, however, should not be construed as an obligation to suspend one's critical faculties and blindly follow those directives regardless of their moral content. *Institutional authority*, which is the right of employers and managers to exercise power so employees will meet their institutional duties, is morally justified only where the goals of the institution are morally permissible and when the way in which it is exercised does not violate other moral duties.

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. Professional societies can help improve employment conditions short of acting as collective bargaining agents.

Confidential information is information that in the judgment of employers or clients should be kept secret to serve their interests. *Proprietary information* and *trade secrets* are information protected by the courts. The confidentiality obligation can be justified by appealing to ordinary moral reasons such as respect for autonomy (of clients and employers), respect for promises (between employers and employees), and social well-being (by stimulating the development of new products). The obligation can also be justified by appeal to 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. 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.

Employee conflicts of interest occur when employees have side interests that if pursued could prevent them from meeting their obligation to serve the interests of their employers. Typically such side interests threaten employer interests by biasing 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, they are always subject to the employer's approval.

Occupational crime is the secretive violation of laws regulating work activities, and white-collar crime is the special case where professionals or other white-collar workers commit the crime. 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.