Guarding the Wealth of Nations

by Patrick Marshall

Intellectual property, once a subject with all the sizzle of tort law reform, has suddenly become a major issue in U.S. foreign policy. Conflicts over patents and copyright protection are now a powerful irritant in America's relationships with several foreign powers. The subject was high on President Bill Clinton's agenda during his postelection swing through Asia last fall, and it is sure to remain a premier concern in the decades ahead as the United States fights to hold its place in the new knowledge-based world economy.

American business and political leaders are alarmed that important U.S. industries—mainly those that sell easily copied intellectual property, such as computer software, movies, and recorded music—are being mauled by a new breed of foreign pirate armed with computers, CD recorders, and tape decks. And even those industries that deal in less easily copied intellectual properties—such as patented seed varieties and pharmaceutical formulas—are losing money and, perhaps in the long run more important, competitive advantage. By some estimates, the losses are big enough to sway the U.S. balance of trade, already chronically in deficit.

Although it is difficult to gauge the full magnitude of the problem, evidence of large-scale theft abounds. In March 1996, for example, authorities in Singapore, acting on tips from the U.S.-based Business Software Alliance, conducted two raids that resulted in the seizure of more than $2.4 million worth of pirated computer CDs. In May 1996, South Korean authorities raided a video piracy operation in Seoul, seizing 1,176 VCRs, 145,794 unauthorized copies of motion picture videocassettes, and 111 other machines used in the duplicating process. That same month, police in Siedlce, Poland, confiscated approximately $4 million in copying equipment and pirated video and audio tapes during a raid on four warehouses.

Overall, the Office of the U.S. Trade Representative (USTR) estimates, U.S. companies are losing about $40 billion per year in overseas sales through such piracy of intellectual property. Most of the losses are experienced by three industries: computer software, entertainment, and pharmaceuticals. And by most estimates, the biggest losers are software companies. According to the Business Software Alliance, U.S. software companies lost $15.2 billion to overseas pirates in 1994, the latest year for which figures are available.

These are not trifling sums. Two years ago, a dispute over software piracy almost ruptured U.S.-Chinese relations. In February 1995, after repeated complaints about the sale of illegal copies of U.S. software in China, the Clinton administration threatened to impose $1 billion in trade sanctions on China. The threat was lifted after Beijing promised to crack down on the pirates, a vow that some in the industry say has been only partially fulfilled. But China is far from the worst transgressor. While the

Software Publishers Association estimates that $187 million worth of software was pirated in China in 1994, that figure is dwarfed by the losses in Japan and Germany. According to some estimates, $2 billion worth of software was pirated in Japan in 1994 and $1.8 billion in Germany. But these figures represent only a fraction of software sales in these countries—and relatively little of the theft is the work of organized counterfeiters.

In Hong Kong, as in many other Asian cities, it's often easy to find stores openly selling pirated computer software.

All pirates aren't foreigners, of course. While the software industry estimates that roughly 85 percent of software piracy occurs outside the United States, that still leaves 15 percent—or nearly $3 billion worth—that takes place within U.S. borders. The culprits range from people who peddle hot videotapes to friends who share a copy of WordPerfect or Netscape Navigator.

Some critics have charged that the numbers used in this debate are at least slightly cooked. The estimates are, for example, usually based on guesses about how many legal copies of a program or a video movie *should* have been sold in a given country, assuming buying patterns similar to those in industrialized countries. That is a rather large assumption, however. Nor are estimates of losses to U.S. companies based upon known sales of pirated software or other products a particularly reliable guide. Just because pirates may be able to sell a large number of videotapes at $5 per copy doesn't mean that legitimate versions priced at $15 would sell as well. Every sale of a pirated product does not, in short, necessarily equal a lost sale of a legitimate product.

While the exact amount of the losses is debatable, there is no doubt that they are significant. And the United States—with an economy based increasingly on knowledge-related goods—has made it plain that it intends to pressure trade partners as well as international organizations to provide stronger protections for such properties.

But there is another side to the issue. During the latest round of negotiations surrounding the General Agreement on Tariffs and Trade (GATT),

Brazil and India led a group of developing countries that argued that strict patent and copyright protections give unfair advantages to developed countries. They argued that since the industrialized countries generate the most patents and copyrighted works, strengthening protections would only serve to perpetuate their dominance. Indeed, they said, it was insane to increase the industrialized world's grip at the very moment when knowledge has become far more vital than ever before to national economic success.

There are, in fact, important tradeoffs that occur in patent and copyright protection—tradeoffs that must be reckoned with at the national as well as the international level. Deciding how much protection to extend to intellectual property involves judgments not only about the rights of inventors and other creators but about how best to encourage creativity. Is it fostered by granting relatively large rewards to creators, thus spurring individual effort, or by ensuring greater access by more people to the fruits of invention?

The very notion of creators' "rights" is largely a product of the West, which is home as well (and by no accident) to the idea of private property rights. Kings and other potentates throughout recorded history paid rewards or pensions to those who provided special services—including inventions or other innovations—to the state. But it was in Western Europe that this practice was formalized into a system. The term *patent* itself is of English origin and is derived from *letters patent*, which were documents that conferred some royal privilege upon the recipient, often a monopoly market. In return for such favors, the artisan was expected to train a certain number of local citizens in the art or craft in question. Often, the service provided by the artisan was not even an original invention. In the early 14th century, for example, King Edward III of England awarded royal grants to foreign weavers who agreed to settle in England. Similarly, in 1440 John of Shiedom was given a letter patent in return for having imported a new method of processing salt.

This was not just an English practice. Galileo, for example, received a 20-year patent from the doge of Venice in 1594 for an irrigation device he had invented. But it was in England that patents were elevated from the personal dispensation of a ruler to a matter of law. The first statement of the rationale that underlies modern patent law was made in England in 1559. An Italian living there, Giacopo Acontio, applied to the crown for a patent, arguing that without it others would copy the furnace he had designed. "Those who by searching have found out things useful to the public should have some fruits of their rights and labors," Acontio argued. He received a pension of £50 a year and a letter patent.

In practice, however, letters patent were often abused. They usually guaranteed tidy profits to those who held the monopolies and, indirectly, to the monarch, but it was generally citizens who footed the bill in the form of higher prices, with no real innovations being introduced to the community in return. As a result, the Statute of Monopolies—the first statute directly addressing patent issues—was adopted in England in 1623. It declared patent monopolies invalid, with a single exception: patents of up to 14 years could be granted to "new manufactures within this Realm to the true and first inventor or inventors thereof." In short, patents were now to be given only for inventions, and only to the person or persons who invented them.

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It was the United States, however, that set up the first formal system of considering and awarding patents. Prior to the American Revolution, most of the colonies had procedures for granting such patents. Indeed, the first patent in British America was awarded in 1641, not very long after the first European settlers arrived. But it was after the Revolution that the former colonists carefully set about formalizing a patent system as a goad to innovation. Intent on catching up to European industries, not bound by a set of existing legal traditions, and already working on a new legal framework for the country, Americans must have come almost naturally to the idea of grounding patent and copyright protection in the Constitution. Accordingly, Article I of the Constitution grants Congress the power "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

The first copyright laws are of somewhat more recent vintage than the first patent laws. After all, until the means to copy written works on a large scale existed—printing presses and, more recently, copy machines and other new technologies, such as the Internet—there was not much fear of unwarranted copying. And as with patents, the first copyright laws were motivated by a desire to circumscribe rather than bestow a monopoly right. During the late 17th century, book publishing in England was controlled by a small group of publishers. The Statute of Anne, enacted by Parliament in 1710, limited this monopolistic control over works to a specified number of years, after which anyone could publish the work.

The main changes in U.S. patent and copyright laws over the years have entailed alterations in the types of things covered and the period of protection offered. Currently, U.S. patents—which protect original inventions of products or processes—have a life of 17 years, with a possible extension of five years under certain circumstances. Copyrights—which protect written works and works of art, including illustrations and music—provide protection for the author's lifetime plus 50 years. But even today the lines are not always clear. Until relatively recently, for example, software was treated solely as copyrightable material. Beginning in the 1980s, under pressure from some companies that wanted the shorter-term but more far reaching protections offered by patents, the Patent Office began awarding patents to software under the rationale that software is a process that operates a machine.

While no one has seriously argued against the importance of copyright laws, some critics, including even major software vendors such as Oracle Corporation, developer of one of the most popular database programs, argue that patent laws can have a chilling effect on innovation. The cost of simply applying for patent protection—which involves a search costing about $10,000 to see if there are any conflicts with existing patents—can be daunting for small businesses and individuals. Patent insurance, designed to protect companies against losses due to patent infringement suits, is also expensive, usually running around $50,000 per product.

The burden of keeping up with relevant patent applications filed by others while trying to develop products can also be chilling. A programmer writing a new application, for example, needs to keep on top of new patents to make sure his program won't infringe on someone else's patent and perhaps land him in a multimillion dollar lawsuit. Over the next year, the U.S. Patent Office will grant more than 100,000 patents, and of those around 4,000 will be software patents.

Even if the system runs like clockwork, there is room for abuse. One San Diego software company was recently driven out of business when a judge forced it to pull a product from the market because a competitor had filed a patent infringement suit. It didn't help the hapless company when the suit was later found to be groundless.

Many critics argue that patent protection has been extended to some types of products and processes that should not enjoy it. Computer software is one of those questionable areas. Critics argue that the Patent Office's examiners are generally not qualified to judge whether a program is sufficiently original and innovative to deserve patent protection. That is why, for example, Compton's NewMedia was granted a patent for basic techniques for searching and retrieving information from CD-ROM databases in August 1993, only to have the patent withdrawn the next year after other computer companies complained that there was nothing unique in Compton's method.

An even more obvious problem area is patents for surgical and medical procedures, which the Patent Office has been issuing since 1952. This wasn't a problem until recently, in large part because such patents were not enforced by the patent holders. Over the past 10 years, however, that has changed. In one recent case, Samuel Pallin, an ophthalmologist, attempted to collect a small fee for use of his patented procedure for sutureless cataract surgery. His fellow ophthalmologists responded by lobbying for federal legislation to prevent such patents from being awarded, and H.R. 1127 was duly introduced in the House of Representatives in March 1995. It does not appear to have much chance of passage.

Pallin's patent was declared invalid by a federal court in 1995, but his claim raises troubling questions. Even some medical groups, such as the American Academy of Orthopaedic Surgeons, have come out against patents for medical procedures on the grounds that they tend to slow the dissemination of techniques and lead to higher health-care costs. Critics also note that, just as with software patents, the Patent Office does not have examiners qualified to determine if a particular procedure is unique and deserving of a patent. Finally, given that most innovations in procedures come out of research hospitals and universities, it's not at all clear whether patents serve as an incentive, since research will continue at those institutions whether the patents are available or not.

Patent and copyright policies are political compromises that attempt to strike a balance between two important interests. On the one hand, society at large has an obvious interest in seeing innovations publicly disclosed, disseminated widely, and commercialized as quickly and as inexpensively as possible. On the other hand, patent and copyright policies assume that innovations will not be as forthcoming, or that disclosure will be slower in coming, if the inventor or author does not have the expectation of controlling their creation. In the short run, consumers may pay higher prices for things that enjoy such

protection, but in the long run they will benefit from a larger number of innovations.

Many of these issues are played out in a different form on the international stage, where the fact that the key actors are countries rather than individuals and companies—and the fact that the wealth of nations is at stake—profoundly changes the terms and tenor of the debate.

While most countries today have some sort of patent and copyright laws, there are significant differences between U.S. laws and most foreign laws, differences that U.S. patent and copyright owners say often work to their disadvantage. The United States, for example, is virtually alone in reserving patents for the first inventor of an invention, and in keeping the details of an invention secret until the patent is issued. And some countries, particularly in Asia, have historically refused to offer patent protection to foreign inventions that affect protected domestic industries. Some countries allow the foreign invention a local patent but make licensing to local manufacturers compulsory.

Software "pirates" include those who share programs with friends. U.S. piracy amounts to $3 billion.

The extent of copyright protection also varies widely around the world. Some countries—including Costa Rica, Romania, and Turkey—do not extend protection to software at all. Many developing countries have provided protection only to copyrightable works that are first published locally. Indeed, even the primary international agreement on copyrights—the Berne Convention for the Protection of Literary and Artistic Works—does not yet include software among protected works. (The Berne Convention may, however, soon be amended to include protection for software.) As a result, some countries have not honored software copyrights granted by other countries. Even Canada did not provide copyright protection for software until 1988.

The most recent round of GATT negotiations did result in clear movement toward global standardization of patent and copyright policies. Under the new agreement, completed in 1994, a minimum duration of 20 years from the filing date was set for patents. What's more, members must provide such protection "without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced." Copyrights were not overlooked, either. Copyright protection was specifically extended to software under the agreement, to last for not less than 50 years.

What is perhaps most significant is that the signatories—and there are more than 120 members of GATT, including most of America's major trade partners, with the notable exceptions of China and Taiwan—promised to provide "national treatment" to foreign patent and copyright applicants. That is, for-

eign applicants will face the same requirements and be offered the same protections that are applied to local applicants.

Still, there are lots of trap doors in the agreement. For example, it doesn't eliminate compulsory licensing. And it allows countries that are just beginning to offer patent protection for pharmaceuticals and agricultural chemicals to overlook the existing patents of foreign products.

What's more, while GATT members were given a period of only one year following activation of the agreement, on January 1, 1995, to implement the provisions, developing countries and those moving from a centrally planned economy to a free-market economy—meaning the former Soviet-bloc countries—are exempt for an additional four years. And the least-developed countries have up to 10 years to comply.

The biggest joker in this deck of international agreements, of course, is enforcement. While the GATT agreement and other international treaties provide mechanisms for resolving disputes, experience indicates that such forums rarely deliver satisfactory results.

As U.S. trade officials noted during the 1995 copyright dispute with China, all the necessary international and Chinese laws were already in place to protect American software. It was only the will to enforce those laws that was lacking. It took the threat of U.S. sanctions to help Beijing find its will. But could a lesser trading partner have won China's compliance by working through an international forum? Not likely. In short, while recent changes in international law affecting intellectual property are important, for the time being it is realpolitik, chiefly in the form of bilateral trade pressures, that will continue to have the greatest impact.

But while the world's industrialized countries, led by the United States, continue to step up efforts to counter international thefts of intellectual property, they would do well to consider both the historical context of intellectual property and the longer-term political implications of tighter enforcement measures. Most of the now-industrialized countries, including the United States, achieved that status by building upon the innovations of other countries in an age when "borrowing" an idea—for a better plow design, a textile loom, or a new variety of wheat—didn't lead to potentially crippling international trade sanctions.

Can the United States reasonably blame a developing country for allowing local companies to produce badly needed drugs at one-tenth the cost of those obtained from a U.S. pharmaceutical company? And can the United States reasonably blame a developing country if it does not want to support the idea of patent protection for seed varieties if it means the country's farmers will have to pay five times as much to plant their crops?

Ultimately, a system that encourages innovation by securing appropriate rewards for inventors provides the biggest payoff for everyone. But the industrialized countries need to recognize that if they are going to change the rules of the game—and formal intellectual property protections do represent a change in the rules for most countries—they are going to have to help provide alternative routes of economic development.