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## Overview of the United States Intellectual Property System: Current Issues

*by Michael S. Keplinger\**

### I. INTRODUCTION

**I** am pleased to be here with you to participate in this conference on *Canada-United States Economic Ties: The Technology Context*. At the outset, and to set the tone for my remarks, I would like to recall an ancient Chinese curse: "May you live in interesting times." In the field of intellectual property we are all living in interesting times. The linkage of intellectual property to trade, and the continuing movement of the industrialized countries' economies into the high-tech and information industries, has elevated intellectual property to rarefied heights of policy discussion never before known.

Intellectual property generally is understood to comprise two major branches: copyright and industrial property. Copyright aims at protecting the fruits of the creative efforts of authors, composers and artists, while industrial property has as its major objective the protection of inventions and trademarks, and the repression of unfair competition. Rather than discussing the intricacies of the U.S. intellectual property laws, I believe that our time here could be more profitably spent in reviewing current intellectual property issues of concern to the United States and as a background for further discussion of these issues in the U.S.-Canadian context. First, let us turn to the overreaching concerns with piracy and counterfeiting that raise issues from the full spectrum of patent, copyright and trademark law.

### II. COUNTERFEITING AND PIRACY IN INTERNATIONAL TRADE

Every year inventors, authors and entrepreneurs lose billions of dollars to piracy and counterfeiting in foreign markets and in international trade—dollars that rightfully are theirs. No creative product is immune from being "ripped off." Duplicated products range from birth control pills to automobile fenders, from the latest motion picture to a tennis racquet—the list could be endless. Virtually any product protected by patent, copyright, or trademark law can be easily and cheaply duplicated and put on the market in competition with the legitimate product.

This problem occurs for a number of reasons. In the case of patents,

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a number of countries provide no patent protection; others have no patent protection for pharmaceuticals and chemical products; and some only have process patent protection for pharmaceuticals and chemicals. In the case of copyrights, some countries have old copyright laws that have not been brought up to date to include new forms of authorship and new media such as computer programs, and audio and video recordings, and others either have no copyright laws or they do not belong to one or both of the copyright conventions. Some countries' trademark laws are weak and permit trademark piracy and counterfeiting to go unchecked.

In all areas of intellectual property, enforcement of the law remains a major problem. Despite the best efforts of intellectual property owners to enforce their rights in civil litigation, the pirates can stay one jump ahead. Often, governmental assistance in the form of police raids and the like is what is needed but is often not available, either because of an inadequate law or an insufficient will on the part of the government to enforce the existing law.

The magnitude of the problem is enormous. In studying copyright piracy in ten countries—Singapore, Taiwan, Indonesia, Korea, the Philippines, Malaysia, Thailand, Brazil, Egypt, and Nigeria—the International Intellectual Property Alliance estimates the annual loss to the United States to be at least \$1.3 billion per year. The U.S. International Trade Commission's study on the "Effects of Foreign Product Counterfeiting on U.S. Industry" conservatively estimates that in 1982 between \$6-8 billion of domestic and export sales were lost to U.S. industry by foreign product counterfeiting, passing off, patent, and copyright infringement. No composite data are available on the magnitude of losses due to patent infringement worldwide, but the U.S. Pharmaceutical Manufacturers Association estimates that the lack of patent protection for pharmaceutical products in Brazil alone results in a loss of \$100 million a year.

I must emphasize that these numbers are only estimates and not precise figures. They also overlap, so it is impossible to obtain an accurate figure for worldwide losses to U.S. intellectual property owners from piracy and counterfeiting, let alone to all intellectual property owners. But one point is clear: the losses are enormous.

What is needed to combat this problem are laws that provide intellectual property rights owners with adequate levels of protection for their inventions and creative works, and an effective system for the enforcement of their rights, both in the creator's own country and abroad. A number of steps have been taken in the United States to promote intellectual property rights protection internationally and domestically. While our efforts have been focused on patent, trademark and copyright laws, we are also concerned with protection against unfair competition; protection for trade secrets and know-how; and the administrative and judicial infrastructure that determines how effectively intellectual property rights are protected. In this last category I include such matters as the timeli-

ness with which patents and trademarks are granted and registered, the access of U.S. nationals to foreign courts, and the availability of effective discovery mechanisms.

### III. DOMESTIC INITIATIVES

All too often, we point fingers elsewhere and ignore the intellectual property rights protection problems we have here in the United States. Through the Economic Policy Council and its predecessor, the Cabinet Council on Commerce and Trade (CCCT), many important intellectual property rights issues have received greater high level attention than at any time in my twenty-three years experience in the Government.

Consider trademark counterfeiting. The targets of counterfeiters range from designer jeans to agriculture chemicals, from heart pumps to aircraft parts. Many of these counterfeit goods were being sold in the United States because we did not have domestic sanctions adequate to deter those sales. The Reagan Administration endorsed a two-prong proposal: domestically, enact an anti-counterfeiting law with sanctions severe enough to make it economically unprofitable to engage in trademark counterfeiting in the United States; and, internationally, redouble the ongoing effort to achieve an international anticounterfeiting code under the auspices of the General Agreement on Tariffs and Trade (GATT). The domestic recommendation was realized with the October 1984 enactment of Public Law 98-473 which provided penalties of up to \$5 million and 15 years imprisonment for trafficking in counterfeit goods. I am informed that the Justice Department has obtained indictments in a number of cases, so relief is on the way.

### IV. MULTINATIONAL INITIATIVES

Internationally, the Administration is continuing its efforts to develop an anticounterfeiting code under the GATT which would require nations to seize and not return to the importer goods found to be counterfeit. Although the United States is making every effort to develop a code, there is a developing country move, led by Brazil and India, to slow our efforts through suggestions that we begin anew to address the problem of counterfeit goods under the auspices of the World Intellectual Property Organization (WIPO). It is interesting to note that, in response to this GATT activity, WIPO has taken up the piracy and counterfeiting issue in a way that will hopefully complement our efforts in the GATT. We are also working toward incorporating intellectual property issues into the next round of multilateral trade negotiations under the GATT.

For a number of years, broadcasts transmitted by satellite to portions of the southern United States suffered from piracy. This was possible because the satellite's "footprint," in addition to reaching the intended area, of necessity reached countries in the Caribbean. Some countries in the area were intercepting and retransmitting these signals

without compensation to the copyright owner. Two actions have been taken to address this problem. First, Congress enacted the Caribbean Basin Initiative which conditioned the receipt of favorable tariff benefits on insuring that steps were taken to curb satellite signal piracy. Second, the CCCT recommended that the United States ratify the Brussel's Satellite Convention. The Convention, negotiated in 1974, prohibits the unauthorized retransmission of program carrying signals transmitted by satellite. Following Senate advice and consent on October 8, 1984, the Brussels Convention was ratified and came into effect for the United States on March 7, 1985.

The Administration has also been successful in resisting efforts by developing countries to seriously weaken the 100 year old Paris Convention for the Protection of Industrial Property. This basic treaty, administered by the World Intellectual Property Organization, specifies certain minimum norms of protection for patents, trademarks and unfair competition for its 96 member countries. The developing countries have been seeking to amend the Paris Convention to expressly authorize compulsory exclusive patent licenses. This confiscatory proposal could prevent an American company from selling or using its patented products in any country which took advantage of such an authorization. Through efforts by the developed countries, including Canada and the United States, we have been able to block this proposal for now; but we must remain vigilant against its reemergence.

Even if the U.S. is successful in establishing an anticounterfeiting code in GATT and in blocking various proposals to weaken the Paris Convention in WIPO, we will still have to continue bilateral negotiations with both developed and developing countries. There are several reasons. First, multilateral negotiations consume a lot of time. Also, when we do finally obtain an anticounterfeiting code, pirate nations cannot be expected to stand in line to sign up. Finally, the Paris Convention and the Universal Copyright Convention (UCC) establish only minimal levels of protection and pirate nations cannot be expected to voluntarily exceed these levels.

## V. BILATERAL INITIATIVES

### A. *Background*

The Department of Commerce, the Office of the United States Trade Representative, and the Department of State have a long history of seeking to resolve these problems through bilateral discussions. In 1979, along with representatives of the Commerce Department's International Trade Administration, the USTR, and the Department of State, we participated in negotiations held in Budapest to address the complaints of U.S. agricultural chemical manufacturers concerning the disregard of their patent rights by the Government of Hungary.

Since then, bilateral discussions have been held with Brazil, Ruma-

nia, Singapore, Malaysia, the People's Republic of China, South Korea, Thailand, Taiwan and Yugoslavia. In addition, educational seminars have been held on copyright issues in Malaysia, Indonesia and Thailand. This illustrates the Administration's long involvement with improving protection for U.S. intellectual property abroad. It brings us nearly up to date, and it also points out that the problem has grown from a purely intellectual property issue involving patent protection for agricultural chemicals, to a major trade issue involving the entire spectrum of intellectual property rights.

I would be remiss if I did not acknowledge the support Congress has provided in addressing this problem. When we began discussions with Hungary, we lacked the tools needed to bring pressure to bear on the issues being addressed. Since then, the Trademark Counterfeiting Act of 1984, the addition of adequate and effective protection of intellectual property as a consideration in the Generalized System of Preferences and the Caribbean Basin Initiative legislation, and section 301 of the Trade Act of 1974 have given us some of the tools needed to address this problem. We have come a long way toward developing what we need, and further legislation to strengthen intellectual property protection are part of the Administration's legislative agenda.

Equally important has been the erection of an administrative structure to coordinate the activities of the Agencies through the creation of the Cabinet Council system. Recognizing the importance of intellectual property protection in U.S. trade, Secretary Baldrige created a Working Group on Intellectual Property under the former Cabinet Council on Commerce and Trade (CCCT). The CCCT has been merged into the Economic Policy Council, but the Working Group continues with a charter to identify and raise, for the appropriate Cabinet Council, intellectual property issues facing U.S. industry.

In his Trade Policy Action Plan, the President directed the United States Trade Representative to initiate and accelerate both bilateral and multilateral negotiations with countries where the counterfeiting or piracy of U.S. goods has occurred, and to prepare an Administration policy statement on intellectual property. The President also directed that a Strike Force be established, including the relevant agencies of the Federal Government, to identify unfair foreign trade practices and execute the actions needed to counter and eliminate these unfair practices in order to promote free trade and exports. The Strike Force is to find ways to use the multilateral negotiating process to eliminate unfair trade practices and improve access for U.S. exports, particularly agriculture and high technology, and address newer forms of international trade problems, including intellectual property protection, services trade, and investment issues. Besides multilateral negotiations in the GATT, the Administration will also explore possible bilateral and regional trade agreements that would promote more open trade and serve U.S. economic interests.

Thus far I have given you a brief overview of the background against which present Administration activities to combat piracy and counterfeiting ought be measured. I will now present a brief report on a country-by-country basis to point out where progress has been made and where more work is needed.

### *B. Hungary, Romania & Yugoslavia*

The early discussions with Hungary which resulted in a resolution of problems concerning product per se protection for agricultural chemicals encouraged further attempts to resolve other problems. In the case of Romania, we are participating in discussions of the Joint U.S. Romanian Economic Committee to attempt to overcome problems related to eligibility of U.S. firms to obtain protection for chemical compounds under the Romanian patent law. A proposed memorandum of understanding has been developed and will be discussed at the next meeting of the Joint Committee. In the case of Yugoslavia we are engaged in discussions seeking to resolve a host of patent issues and a particular trademark requirement involving the marketing of U.S. pharmaceutical products in Yugoslavia.

### *C. Taiwan & South Korea*

Based on the early successes in bilateral discussions in Hungary regarding intellectual property issues, the Department of Commerce, joined by the Office of the United States Trade Representative, initiated talks with Taiwan and South Korea in 1983. Not only had Taiwan been identified as the leading offshore producer of counterfeit goods, it was generally considered among the world's leaders in deficient intellectual property rights protection.

When we started, U.S. firms did not have full access to Taiwan's courts to prosecute counterfeiters. Trademark infringers could "buy-out" of prison sentences for small sums; there was no effective copyright protection for foreign works; there was no concept of unfair competition law as we know it in the United States; only the process for manufacturing chemical inventions could be patented. Police raids to obtain evidence were difficult to obtain and evidenciary standards for proving one's case in court were non-existent—to mention only a few of the problems.

Our discussions in South Korea centered on the lack of patent protection for chemical compounds, although we also discussed the implementation of their unfair competition law, trademark licensing problems and other topics. We visited South Korea again in November 1984 to discuss their progress on drafting a new copyright law. While some limited progress was achieved as a result of our 1983 visits and further progress followed return visits in 1984 and 1985, we obviously are not home yet.

The authorities in Taiwan have agreed to take steps to improve in-

lectual property protection across the board. They have enacted a new copyright law and issued an executive order ensuring full national treatment for U.S. works. The draft enforcement rules for the new copyright law, incorporating changes suggested by the U.S., have been submitted to the Executive Yuan for approval. Proposed patent law amendments, including protection for chemicals and pharmaceuticals, a draft for an unfair competition law, and a law protecting new plant varieties have been submitted to the Executive Yuan.

The discussions with South Korea, also initiated in 1983, followed a somewhat different course. Resolution of the issues seemed to be getting further over the horizon, rather than closer. In October of 1985, consequently, the Administration self-initiated an investigation under section 301 of the Trade Act of 1974 for Korea's failure to provide our nationals with adequate and effective intellectual property protection. The key issues of the section 301 investigation were the lack of compound patent protection for agricultural chemicals and pharmaceuticals, no protection for U.S. copyrighted works, and trademark problems caused by interaction of certain import restrictions and licensing restrictions with the trademark law.

We have moved toward resolution of certain of the elements of these problems. Korea has agreed to amend its patent law, enact a copyright law and establish copyright relations with the United States, and has already taken the administrative actions needed to improve the trademark problem. However, differences remain: the timing of the needed legislative action for patents and copyrights and establishment of copyright relations remains under discussion. Also, agreement on the necessary transition provisions to freeze production of chemical and pharmaceutical products under patent in the U.S. at today's levels, and to provide for Korean recognition of certain existing U.S. copyrights, has thus far eluded resolution.

#### *D. Singapore*

Along with the 1984 broadening of discussions with Taiwan to include copyright issues, we initiated discussions with Singapore to attempt to address the rampant copyright piracy there. The International Intellectual Property Alliance characterizes Singapore as "truly the world capital of piracy" with estimated losses to U.S. intellectual property owners of \$358 million annually. However, I am happy to report that significant progress toward promulgating and enacting a modern copyright law is underway.

In 1985, a team of U.S. copyright experts was invited to visit Singapore to consult with their drafters on the substance of a new copyright law. Their discussions were highly successful and we have been assured by Singapore that the concerns expressed by the U.S. government experts at the consultations have been taken into consideration. It appears that



Singapore will soon enact a new copyright law that will include good enforcement provisions and protection for the full range of copyrighted works, including computer programs. However, we may run into a problem with our progress in Singapore because of current U.S. action on the extension of the manufacturing clause of our copyright law which requires U.S. authored books to be printed in the United States.

We have been advised that, if the present manufacturing clause is extended by Congress, Singapore may reconsider joining the Universal Copyright Convention; and if the clause is modified to include a waiver procedure, they will only adhere to the Universal Convention if they are assured of a waiver. This only serves to point out the short-sightedness of our maintenance of protectionist features in our own intellectual property laws.

### *E. The Pacific Basin*

We are not seeking to accomplish our goal of improving intellectual property protection strictly through the use of a stick. We believe that many problems in developing countries can be rectified or improved by working with officials of these countries to expand their knowledge of how protection of intellectual property rights can contribute to their advancement and utilization of technology. In early 1985, we sponsored copyright seminars in three Pacific Basin countries: Malaysia, Thailand and Indonesia. Experts from the United States Patent and Trademark Office, the Copyright Office and the private sector conducted these seminars which were arranged in each country by the Foreign Commercial Service Officer, government officials of the host country and local groups interested in copyrights. Although the results of the seminars were mixed, I would note that a Mr. Sudirman, Malaysia's number one recording star, delivered an impassioned speech during the seminar in Malaysia describing piracy as a black cloud that threatened to destroy the whole Malaysian music industry.

Those seminars have led to very positive results. Discussions have been initiated with Thailand aimed at obtaining protection for pharmaceutical products and assurances have been made that certain problems in our bilateral copyright relations will be corrected. We are also advised that Thailand considers that its copyright law protects computer programs.

In Malaysia, a new copyright law that includes protection for computer programs and greatly strengthened enforcement provisions has been drafted and made available for public comment. Following comments by Malaysian and U.S. copyright experts, the government of Malaysia has revised the bill and expects to submit it to the June session of its Parliament. It is expected that Malaysia will join the Universal Copyright Convention (UCC) soon after the new law is enacted.

With respect to Indonesia, the educational process is continuing. In

January, the Register of Copyrights and the Assistant Commissioner for External Affairs participated in a second educational seminar in Jakarta organized by the Department's International Trade Administration with the support of, and speakers from, the private sector. The reaction to that seminar and the governmental consultations held at that time have made us mildly optimistic for some progress in convincing Indonesia of the need to provide protection for foreign intellectual property.

#### *F. India*

We are also considering a similar program to open a dialog with India on the resolution of long standing problems there. While India's copyright law is relatively modern and U.S. works are protected there by India's membership in the UCC, enforcement problems exist. Also, some problems related to performance rights need to be addressed. With respect to patents, the situation is different. India does not belong to the Paris Convention and its patent law is woefully inadequate. These problems were discussed in the March 19th meeting of the Indo-U.S. Economic and Commercial Subcommittee.

#### *G. Latin America*

In this hemisphere, we have had continuing problems in Latin America, particularly Mexico and Brazil. These include the lack of patent protection for agricultural and pharmaceutical chemicals, uncertain protection for computer software, and a generally unsatisfactory level of enforcement. In Brazil we have thus far prevented the enactment of legislation that would provide a totally inadequate non-copyright system of protection for computer software, but we have not been able to convince Brazil of the wisdom of providing copyright protection for computer software.

The International Trade Administration is currently considering organizing a series of seminars in South America to begin the process of addressing these problems on a more structured bilateral basis. We are also initiating a training program in Washington for selected developing country officials. The program is aimed at training these officials to administer effective patent, trademark and copyright systems. The first class was held in July 1985, with six participants (out of more than forty who expressed an interest in attending). Two were from Pacific Basin countries, the remainder were from Latin America.

Related to training programs, the Patent and Trademark Office is also developing, as a spin-off of our efforts to automate our trademark operation, a model software package for Latin American trademark offices. We are working with the Spanish Intellectual Property Organization to develop both management and search system software. We will use Mexico as the pilot country and will offer the software free of charge to other Latin American countries when it is perfected.

## H. Canada

As I mentioned earlier, the Administration's efforts to strengthen intellectual property rights protection are not limited to developing nations. We have been following closely Canadian deliberations to develop stronger patent protection for pharmaceutical inventions and to revise its copyright law. Today, Canada routinely grants compulsory licenses under pharmaceutical patents to any applicant for a 4% royalty. We believe the lack of any significant pharmaceutical research or development in Canada is attributable to this practice. We made our views on this matter known to the Eastman Commission and stand ready to provide any further assistance we can. We have also provided detailed comments on the recent report of the Canadian Parliamentary Subcommittee on Copyright Revision and the Government of Canada's response to that report, and look forward to a resolution of our major areas of concern such as cable and satellite retransmission of U.S. television signals.

This summary of the many issues concerned with multilateral and bilateral approaches to improving intellectual property protection worldwide should not detract from a number of current specific topics that deserve mention.

## VI. COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE

The United States has accepted computer software as a work of authorship suitable for copyright protection since 1964. This was specifically clarified in Title 17 of the United States Code in 1980 and recent court decisions have resolved some of the major remaining questions. Thus, the United States has led the growing consensus on the copyrightability of computer software. It was therefore a matter of some concern to us in late 1983 when Japan's Ministry of International Trade and Industry proposed a *non-copyright* scheme to protect software which provided a short-term and liberal compulsory licensing. The United States made known not only its objection to this scheme, but also the long-term disadvantages to Japan of following such a course.

Continued discussion by U.S. officials, coupled with signals from Congress such as Senator Lautenberg's Senate Congressional Resolution 117 (which was enacted as section 257 of the Trade and Tariff Act of 1984) and confirmation of the international consensus on copyright protection at a recent World Intellectual Property Organization meeting of experts, apparently convinced the Japanese that copyright protection of computer software is the correct path. Japan has now amended its copyright law to specifically provide that software is a protected work, as have the United Kingdom, Australia, India, Hungary, France, the Federal Republic of Germany, the Philippines and Taiwan. Court decisions in a number of other jurisdictions including Canada have applied copyright law to the protection of computer programs, and a number of countries are planning to include software in revisions to their copyright laws.

## VII. SUI GENERIS PROTECTION FOR SEMICONDUCTOR CHIPS

An important current issue involves a new form of intellectual property right protection: the Semiconductor Chip Protection Act of 1984 (SCPA). When one considers that the semiconductor industry is projected to have sales in the United States of \$20.5 billion in 1985 and \$36 billion by 1989, and that a complex chip that cost \$4 million to make can be copied for \$100,000, the need for protection is obvious. Congress addressed this need by passing a *sui generis* measure providing copyright-type protection of chips for a ten year period.

The U.S. protection system includes a number of other features specifically tailored to meet the needs of this frontier technology. Protection is automatic, but in order to maintain protection the works must be registered with the U.S. Copyright Office within two years of its first commercial exploitation anywhere in the world. An identifying deposit must accompany the registration and an optional notice is provided for. In an innovative measure, the SCPA specifically provides for the designs of chips to be reproduced for purposes of reverse engineering that leads to the production of another chip that is in itself original. Foreign nationals may protect their chips under the Act if their country either extends similar protection to chips of United States national or is moving toward establishing a similar system. Under this latter provision, we have extended interim protection to Japan, Sweden, Australia, Canada and the ten member countries of the European Economic Community.

The United States, along with Canada and other developed countries, has been working in WIPO toward a new treaty for the protection of semiconductor or integrated circuit chips. That treaty would call for member states to provide levels of protection for chips roughly equivalent to that in the U.S. law. Difficult topics have included defining the subject matter of the proposed convention, the scope of permissible compulsory licensing, and the extent of reverse engineering.

## VIII. U.S. ADHERENCE TO THE BERNE CONVENTION

Recent events have kindled a renewed U.S. interest in the possibility of adherence to the Berne Convention for the Protection of Literary and Artistic Works. First, the United States withdrew from UNESCO at the end of 1984; second, the economic importance of the copyright industries continues to grow; and finally, the 1976 comprehensive revision of the U.S. copyright law brought our law generally in line worldwide standards.

The U.S. withdrawal from UNESCO will not affect our membership in the UCC or our position on the Intergovernmental Copyright Committee (the governing body of the UCC), but it does reduce significantly our ability to exert control over the programs of the UNESCO Copyright Division. It also removes any budgetary control we could exert over the general UNESCO copyright-related work through our participation in

the UNESCO General Assembly's budget approval process. However, the very reasons for which we withdraw from UNESCO apply to an evaluation of its effectiveness as a forum in which U.S. worldwide concerns with copyright ought to be addressed. The influence of the developing countries is disproportionately strong in UNESCO, and this strength is felt in copyright matters.

On the other hand, the Berne Convention is administered by the World Intellectual Property Organization (WIPO), a specialized United Nations agency headquartered in Geneva. WIPO is a well-managed, efficient organization where the influence of the developing countries is not as strong as it is in UNESCO. Even though we are not a member of the Berne Convention, we are a member of the Convention establishing WIPO, and we are one of the early signatories of the Paris Convention for the Protection of Industrial Property.

Finally, the comprehensive 1976 revision of the U.S. copyright law wrought some fundamental changes that made our law, in principle, much more like the copyright laws of the Berne countries. Under the present U.S. law, copyright arises in a work upon its creation and fixation. It generally endures for the life of the author and fifty years after death. The role of formalities is greatly diminished, and the manufacturing clause is due to expire in 1986. Even though there are these basic major areas of correspondence, there are still some points of variance between United States law and the standards of the Berne Convention, and some adjustments to U.S. law will be required.

At the April 15, 1986 Senate Hearing on U.S. Accession to the Berne Convention, the private sector representatives were nearly unanimous in their support for adherence to the Berne Convention. Both proprietors and users of copyrighted works agreed that, in principle, membership in the Berne Union was an issue whose time had come. Some traditional opponents of Berne membership have reevaluated their positions. For example, even though motion picture interests traditionally opposed Berne membership because of their concern over the question of moral rights—generally the right to claim authorship in the work and to object to actions that would prejudice the author's honor or reputation—the Motion Picture Association of America supported Berne adherence. They now support Berne because of their conviction that adherence to Berne is important to the protection of their films in the ever growing foreign market. Copyright users, represented by educators, also supported the concept of Berne adherence. However, some concerns were expressed by representatives of the cable television industries and the jukebox operators.

The exact scope of the legislative adjustments needed to bring the present U.S. copyright law into compliance with the Berne Convention has not yet been determined. However, the necessary changes and the areas of adjustment have been studied by an ad hoc group of private sector user and proprietor experts that has been convened under the aus-

pices of the Author's League of America. This group's studies have indicated areas of divergence between U.S. copyright law and the Berne Convention; these include:

1. The copyright formalities of notice and registration.
2. The compulsory licenses.
3. The moral rights of the author.
4. The manufacturing clause.

## IX. BIOTECHNOLOGY PATENTS

One of the major challenges to the U.S. intellectual property system has been selecting the appropriate system of protection for the rapidly developing field of biotechnology. Advances in biotechnology have a potential to change our lives in ways undreamed of only a few years ago. Gene splicing may lead to new ways of treating cancer; specially tailored microorganisms can help in cleaning up the environment; new drugs will help treat disease more effectively; and we may even see improved strains of domestic animals—supercow and superpig.

Recent court decisions and administrative rulings have applied the patent law to this frontier technology. In the *Chakrabarty* decision, the Supreme Court found microorganisms that had been specifically tailored to control or eliminate oil spills were protectable by the patent law. But all the questions are not yet answered. The law is evolving and the WIPO is working to develop a better international recognition of inventor's rights in this area.

## X. INTELLECTUAL PROPERTY AND TRADE

You have heard about the linkage of intellectual property and trade issues in an earlier session of this conference. I won't repeat what was said, but I will only emphasize the importance of this issue. Bringing intellectual property issues into the next round of trade discussions and working toward the incorporation of intellectual property standards in trade norms in the GATT will have profound effects in the way intellectual property law issues are addressed.

One such fallout has already occurred. At the next WIPO meeting on the protection of integrated circuit chips through a new treaty, a major issue of discussion will be the possible inclusion of a consultation process in the new treaty to be based on the GATT dispute resolution process. This should provide us with a new mechanism to help assure that convention obligations are fulfilled.

## XI. CONCLUSION

In conclusion, I would like to reemphasize that we live in interesting times. The intellectual property system is changing and adapting to the increased importance of world trade in products protected by patents,

copyrights and trademarks. This presents opportunities for either closer cooperation or even wider divergence than presently exists between such important trading partners as the United States and Canada. I hope the discussions during this conference will help point the way toward the former path of cooperation rather than the later path of controversy.