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The Importance of Intellectual Property Protection in International Trade

by Gerald J. Mossinghoff*

Intellectual property protection is crucial in fostering international trade. Businesses of all nations now operate in an increasingly competitive worldwide marketplace. Strong domestic and international protection of patents and trademarks is vital to the success of U.S. business in that marketplace. In the past, the United States' greatest competitive advantages were the ideas that led to its industrial and technological progress. Today, the United States needs to encourage and protect those ideas in the international marketplace.

International trade is a major factor in the health and stability of our economy. Total trade in goods and services now stands at twenty-two percent of the Gross National Product.¹ One out of every eight U.S. manufacturing jobs is related to exports.² Each billion dollars in exports supports some 25,000 jobs.³ Even considering inflation, the volume of U.S. exports and imports has more than doubled since 1967, up to more than \$680 billion in 1982.⁴

The international character of U.S. business development is clearly illustrated in the aerospace industry, which for years has added to the plus side of our trade balance.⁵ The civil aircraft sector of the aerospace industry alone generates six percent of all U.S. manufactured exports.⁶ But the days of guaranteed U.S. market domination in civil aircraft are over. The increased costs and risks of developing new technology may be too great for any one country to bear alone. For example, a consortium of companies in the United States, England, Japan, West Germany, and Italy has announced plans to develop a new jet engine to power a new class of commercial short range jet aircraft.⁷

Competition in international trade has increased dramatically over the past decade and a half. For one hundred years — 1870 to 1970 — the United States

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1. U.S. PRESIDENT AND THE COUNCIL OF ECONOMIC ADVISERS, *ECONOMIC REPORT OF THE PRESIDENT* 163 (Feb. 1983).

2. International Trade Administration, U.S. Dep't of Commerce, *Export Factsheet* (May 11, 1983).

3. *Id.*

4. *See supra* note 1.

5. *See* NATIONAL SCIENCE BOARD, *SCIENCE INDICATORS 1980* at 32-33 (1981) [hereinafter cited as *SCIENCE INDICATORS*]. *See also* AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., *AEROSPACE FACTS AND FIGURES 1982-83* at 116-19 (1982) [hereinafter cited as *AEROSPACE FACTS AND FIGURES*].

6. *See* *AEROSPACE FACTS AND FIGURES*, *supra* note 5, at 22.

7. Donne, *Fierce Battles in Engines Market*, *Fin. Times* London, May 23, 1983 (Aerospace 11).

almost always exported more than it imported.⁸ Since the early 1970s, the U.S. trade balance has clearly changed — it has shown significant trade deficits for ten of the last twelve years.⁹ In 1983, the United States experienced a trade deficit of almost \$70 billion.¹⁰ That figure is an increase of almost \$27 billion over 1982.

The causes of the trade deficit include the recent world recession, the debt problems of some developing countries, increased competition, and the strong U.S. dollar.¹¹ There is no one simple solution to the increasing trade deficit, either internationally or domestically. But clearly, trade expansion is essential to remedying this situation. The Reagan Administration is working on many fronts to improve the climate for trade and U.S. competitiveness. For example, the Reagan Administration proposes to reorganize trade functions of the government to combine policy-making and implementation in one streamlined Department of International Trade and Industry.¹² This new department will help in the creation of a coherent, focused, and effective trade policy.

From its earliest consideration of the new Department of International Trade and Industry, the Reagan Administration concluded that the Patent and Trademark Office must be an integral part of the new department. In order to compete internationally, U.S. industry is under mounting pressure to innovate. Innovation frequently entails great costs, not only for research and development but also for the subsequent investments necessary to manufacture and market new products.¹³ The incentive for and the protection of these investments are provided by an effective system of protection for intellectual property.¹⁴ Strong patent protection, along with industry's ability to make effective use of patents to increase exports, to increase licensing of technology, and to increase opportunities for foreign direct investment, are essential to U.S. trade expansion in today's highly competitive environment. Likewise, strong trademark protection, both domestically and internationally, will help governments worldwide to combat the counterfeiting of manufactured goods.

Other countries recognize the value of patents and trademarks in world markets and have taken steps to use intellectual property protection to increase market shares in the United States. Last year, for example, forty-one percent of

8. *America's Hidden Problem*, BUS. WK., Aug. 29, 1983, at 66.

9. Bureau of Economic Analysis, U.S. Dep't of Commerce, 63 SURVEY OF CURRENT BUSINESS 39 (1983).

10. Bureau of the Census, U.S. Dep't of Commerce, Summary of U.S. Export and Import Merchandise Trade, Press Release No. FT900-84-03 (May 1, 1984).

11. M. Baldrige, Remarks before the National Foreign Trade Council 4 (Sept. 19, 1983).

12. Statement of President Reagan (released at the White House, June 1, 1983). See also Department of International Trade and Industry joint statement by Ambassador Brock, Secretary Baldrige, and Senator Roth (released at the White House, June 1, 1983).

13. E. MANSFIELD, RESEARCH AND INNOVATION IN THE MODERN CORPORATION 3-5, 112, 118-19, 123-24 (1971).

14. See Prusak, *Does the Patent System Have Measurable Economic Value?*, 10 AM. PAT. L.A.Q.J. 23, 33 (1982). See also J. FRAME, INTERNATIONAL BUSINESS AND GLOBAL TECHNOLOGY 99-104 (1983).

U.S. patents were granted to foreigners,¹⁵ which is an increase from twenty percent in the early 1960s.¹⁶ Japan and Germany are the principal countries receiving U.S. patents, last year obtaining over fourteen percent and nine percent of total U.S. patents respectively.¹⁷ Japan, in particular, appears to be focusing its foreign patenting in the United States as part of its trade strategy. In 1982, over one-third of Japan's foreign patenting was concentrated in the United States — more than any other country except Canada.¹⁸

Recent activity by the French government provides another indication of the importance with which other nations view intellectual property protection in trade. A 1982 report by France's Economic and Social Council concluded that patents and licensing are extremely effective tools for breaking into new trade markets in today's competitive environment.¹⁹ The report called for a major overhaul of French government and industry attitudes toward the use of intellectual property in establishing trade advantage. In August 1984, the French government announced a number of measures to encourage invention and innovation, to increase French trade competitiveness, and to increase licensing of French technology.²⁰

Many U.S. corporations have used, and continue to use, patents and trademarks to obtain and protect market shares internationally. These efforts could be even more effective if the relationship of intellectual property protection to trade were better understood. A myriad of factors affect trade, all of which make it difficult to isolate the specific contribution of patents and trademarks.²¹ No one has yet quantified that contribution. Nonetheless, the vital role played by patents

15. PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, 1983 COMMISSIONER OF PATENTS AND TRADEMARKS ANNUAL REPORT 21 (1984) [hereinafter cited as COMMISSIONER OF PATENTS AND TRADEMARKS ANNUAL REPORT].

16. OFFICE OF TECHNOLOGY ASSESSMENT AND FORECAST, U.S. PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, ALL TECHNOLOGIES REPORT 1/1963-1983 at A3 (1984).

17. Calculations based on COMMISSIONER OF PATENTS AND TRADEMARKS ANNUAL REPORT, *supra* note 15, at 48, 56-57.

18. Calculations based on WORLD INTELLECTUAL PROPERTY ORGANIZATION, INDUSTRIAL PROPERTY STATISTICS 1982 at 10-15 (1983).

19. Conseil Economique et Social, *La Place et L'Importance des Transferts Techniques dans les Echanges Exterieurs*, 20 Journal Officiel de la Republique Francaise 810-53 (Aug. 19, 1982).

20. Le Boucher, *La Faute à Nimbus, Les Mesures Gouvernementales Pour Encourager les Depots de Brevet en France*, *Le Monde*, Aug. 6, 1983, at 17.

21. The level of trade among countries is affected by many factors, of which intellectual property protection is just one. For example, variations in the exchange rate of currencies cause shifts in the balance of trade over relatively short periods of time. Other factors that affect trade in a direct and immediate fashion are the nature of political relations among nations, current events and crises, the nature and condition of national economies, and the existence of international cartels. Since trade responds to all these forces and events, it is difficult to identify those effects that are due to any single factor.

See, e.g., SPECIAL STUDY ON ECONOMIC CHANGE, U.S. JOINT ECONOMIC COMMITTEE, 96TH CONG., 2D SESS., THE INTERNATIONAL ECONOMY: THE U.S. ROLE IN A WORLD MARKET 747 (Comm. Print 1980). *See also* O. GASS, THE INTERNATIONAL ECONOMY POSTURE OF THE U.S. at 1-88, for a review of the factors affecting the U.S. trade position.

and trademarks as integral components of U.S. trade and industry can be traced in a number of ways. First, patents provide an incentive for innovation, and technological innovation is critical to U.S. trade competitiveness. Second, patents provide technological and market information. Third, patent statistics reveal trends in trade competition. Fourth, the U.S. patent system helps protect domestic markets against foreign competitors who copy U.S. products. Fifth, foreign patent protection helps U.S. firms enter foreign markets. Sixth, intellectual property provides an important source of international license fee income. Seventh, trademarks provide product recognition in the international marketplace. Eighth, effective patent protection in developing countries is critically important to their economic growth.

1. *Patents as an Incentive for Innovation*

Patents provide an incentive for technological innovation, which is a key factor in trade competitiveness.²² The U.S. trade balance illustrates the importance of technological innovation in trade competitiveness. For high technology industries such as aircraft and parts, computers and office equipment, electrical equipment, optical and medical instruments, drugs and medicines, plastic and synthetic materials, engines and turbines, agricultural and industrial chemicals, and professional and scientific instruments, the trade balance has been increasing for the past two decades.²³ It stood at \$30.5 billion in 1980, the most recent year for which precise figures are available. By contrast, the 1980 trade deficit for other industries was \$54.7 billion.²⁴ The total merchandise trade deficit for that year, \$24.2 billion, would obviously have been much worse without the positive balance from high technology products.²⁵ The United States depends on high technology products in its trade relations. These products are the result of intensive research and development (R&D)²⁶ and are protected by the patent system.

Patents are both an incentive for, and a result of, R&D.²⁷ Correlation of patent

22. Though its effectiveness varies from industry to industry, intellectual property protection is a primary incentive for research and development expenditure because it offers the inventor or inventing firm a means by which to appropriate the benefits of that innovative effort. See J. PARKER, *THE ECONOMICS OF INNOVATION* 217 (1974). See also Mansfield, *Patents, Innovation and U.S. Technology Policy*, 10 AM. PAT. L.A.Q.J. 42 (1982).

For a discussion of the role of innovation in trade competitiveness, see Pavitt, *R&D, Patenting and Innovative Activities*, 11 RESEARCH POL'Y 45 (1982). See also Soffer, *Patent Activity and International Competitiveness*, 21 RESEARCH MGMT. 34-37 (1978).

23. See INTERNATIONAL TRADE ADMINISTRATION, U.S. DEP'T OF COMMERCE, *U.S. COMPETITIVENESS IN HIGH TECHNOLOGY INDUSTRIES* 3-13 (1983) [hereinafter cited as U.S. COMPETITIVENESS].

24. *Id.* at 4.

25. *Id.*

26. See U.S. COMPETITIVENESS, *supra* note 23, at Appendix A.

27. Patent protection functions as an incentive for innovation. See *supra* note 22. Patents also result from the innovation process in the sense that patents are awarded to protect newly developed inventions. See SCIENCE INDICATORS, *supra* note 5, at 108-09.

data with research and development expenditures for some major industries — electronics, machinery, instruments and drugs — confirms that patenting is significantly and directly related to R&D expenditures in those industries.²⁸ As R&D expenditures increase, so do the number of patents.²⁹

Data on other industrialized nations substantiate the close relationship of R&D and patenting in U.S. industries. Those nations with high R&D expenditures also patent extensively in the United States. A 1982 British study of twenty nations that make up the Organization for Economic Cooperation and Development (OECD) indicates that the level of national R&D expenditures is closely related to the U.S. patenting activities of those countries.³⁰ An earlier study explored the relationship between U.S. patenting and exports for ten OECD nations.³¹ The study found that for twenty-three major manufacturing sectors, the level of exports to the United States was directly related to the number of U.S. patents obtained by those nations.³²

2. *Patents Provide Technological and Market Information*

Patent documents provide unique technical information that can be invaluable to both industrial researchers and industrial policymakers. Eighty-four percent of all U.S. patents contain technology that is not disclosed or only partially disclosed in the nonpatent literature.³³ This absence of other disclosure makes patents a vital resource of technological information. Such state-of-the-art information is essential to U.S. industrial researchers working to advance the technological frontier or to find alternative solutions to technical problems. Industry policymakers also rely on information about current technological developments.³⁴ Patents reveal which nations and corporations are developing new technologies and allow U.S. companies to assess international competition and to make better business decisions domestically and abroad.

The accessibility of patent information is a key factor in its utility to U.S. corporations. U.S. patents are perhaps the most comprehensive and accessible

28. Scherer, *Research and Development Expenditures and Patenting*, 10 AM. PAT. L.Q. 65, 70 (1982).

29. J. BOUND, C. CUMMINS, Z. GRILICHES, B. HALL & A. JAFFE, WHO DOES R&D AND WHO PATENTS? 31f (Nat'l Bureau of Economic Research working paper no. 908, 1982).

30. Soete & Wyatt, *The Use of Foreign Patenting as an Internationally Comparable Science and Technology Output Indicator*, 5 SCIENTOMETRICS 37, Figure 1 (1983). This study used the statistical method of regression analysis to relate data on national patenting by foreign nations in the United States to data on R&D expenditures by those nations. The study found a close correlation between a nation's level of R&D spending and its level of patenting in the United States.

31. Pavitt & Soete, *Innovative Activities and Export Shares: Some Comparisons Between Industries and Countries*, in TECHNICAL INNOVATION AND BRITISH ECONOMIC PERFORMANCE 38-66 (K. Pavitt ed. 1980).

32. *Id.*

33. Terapane, *A Unique Source of Information*, 8 CHEMTECH 272-74 (1984).

34. The Office of Technology Assessment and Forecast, U.S. Patent and Trademark Office, receives approximately 900 requests for patent information/data per year. The large majority of these requests come from private industry.

source of technological information available anywhere in the world.³⁵ Over 13 million U.S. patent documents, as well as 12 million foreign patents and literature references, are assembled in 114,000 separate technology categories in the files of the U.S. Patent and Trademark Office (PTO). These documents describe all the advances in technology that have occurred in the last 200 years. Each year about 260,000 new U.S. patent documents are added to this file, along with 260,000 new foreign patents. The current PTO program to automate the patent file and to make it more readily available through an expanding nationwide network of Patent Depository Libraries will make this patent information much more accessible to industry and the public.³⁶

3. *Patent Statistics Reveal Trends in Trade Competition*

With the growing recognition of the important role of technological innovation in trade competitiveness, analysts and decisionmakers in both industry and government are becoming increasingly interested in systematic and accurate data on innovative activities. Because U.S. patent statistics reveal trends in the technological activities of foreign competitors, they serve as indicators of the trade competitiveness of foreign industries and companies.

A number of studies show a correlation between per capita exports and the level of foreign patenting in the United States. The 1982 British study illustrates an especially high correlation for industries ranging from office and computing machinery to drugs, industrial inorganic chemicals, engines, and scientific instruments.³⁷ Countries in which this relationship was significant include the United Kingdom, West Germany, France, and Japan.

A 1978 study demonstrated that foreign patenting in the United States was correlated with gross exports to the United States from seven OECD countries including Canada, France, West Germany, Japan, Sweden, Switzerland, and the United Kingdom.³⁸ The PTO has documented the link between Japanese patents in the United States and Japanese exports to the United States in the motor

35. For a discussion on the value of patent documents as a source of technical information, see Vedaraman, *Role of Patents as a Source of Information for the Transfer of Technology*, in *THE ROLE OF PATENT INFORMATION IN THE TRANSFER OF TECHNOLOGY* 134-45 (F.A. Sviridov ed. 1981) [hereinafter cited as Sviridov]. For a discussion on the value of the U.S. patent file in this regard, see Diamond, *Use of Patent Information for Technology Assessment and Forecasting in the USA*, in Sviridov, *supra* this note, at 77.

36. Currently, there are fifty-two Patent Depository Libraries (PDLs) throughout the United States. Almost fifty percent of the U.S. population is within a one-hour commute of one of the PDLs. A second PTO program for disseminating patent information is the Classification and Search Support Information System, known as CASSIS. This is an automated system that provides the public with direct on-line access to patent information. CASSIS is available in the PDLs and the Public Search Room of the PTO.

37. See Soete & Wyatt, *supra* note 30, at 41f and accompanying text. See also Pavitt, *supra* note 22, at 46.

38. Schiffler & Kitti, *Rates of Invention: International Patent Comparisons*, 7 *RESEARCH POL'Y* 324-40 (1978).

vehicle, textile, internal combustion engine, and motorcycle industries.³⁹

U.S. industry and government may use patent statistics to monitor trade competitiveness and assess the technological performance of U.S. industries and firms.⁴⁰ Computerization of official patent records has made patent statistics an important and accessible source of such data.

Over a decade ago, the PTO began an aggressive program to improve and encourage the use of patent statistics by establishing a technology assessment and forecast program. The Office of Technology Assessment and Forecast (OTAF) has assembled a master data base covering all U.S. patents. OTAF uses the data base to prepare general distribution publications as well as custom-tailored reports. OTAF also provides data and analyses on worldwide trends in high technology to government offices, such as the International Trade Administration, the Federal Trade Commission, the International Trade Commission, the Department of the Treasury, and the Office of Science and Technology Policy, as well as to U.S. industry.

Private research and consulting organizations, such as Battelle Northwest Laboratories and Computer Horizons, Inc., are also actively developing methods for generating and analyzing patent statistics for use by private industry in corporate decisionmaking.⁴¹ While the use of patent data as a decisionmaking or strategic tool is increasing in industry, it is still essentially limited to large or especially R&D-oriented firms, such as IBM, Ford Motor Company, GTE Laboratories, and Corning Glass.⁴² In truth, patent information remains a largely untapped resource in the United States.

39. These findings are based on preliminary work recently carried out by the Office of Technology Assessment and Forecast, U.S. Patent and Trademark Office, matching Japanese-origin, U.S. patent data with data for Japanese exports to the United States. The data trends matched well enough to suggest an association between Japanese patenting and exports in the motor vehicle, internal combustion, textile, and motorcycle industries. Other industries, including television receivers and explosives, were examined with positive results in a report prepared by students from the Worcester Polytechnic Institute for the Office of Technology Assessment and Forecast. See R. CRONIN, R. KENNEDY & T. NIVIUS, AN EXAMINATION OF THE RELATIONSHIP BETWEEN U.S. IMPORTS AND FOREIGN PATENT ACTIVITY IN THE UNITED STATES (Worcester Polytechnic Institute, Washington, D.C., Project Center, 1978) (undergraduate project report).

40. For instance, the Office of Competitive Assessment, U.S. Department of Commerce, is experimenting with the use of patent statistics in its analysis of U.S. trade competitiveness. The National Science Board uses patent data in its Science Indicators reports. See SCIENCE INDICATORS, *supra* note 5, at 18-22, 113-14.

41. These organizations use a variety of data drawn from patent documents, particularly patent citation data. See generally Campbell & Nieves, Technology Indicators Based on Patent Data: The Case of Catalytic Converters (1979) (a report prepared by the Battelle Pacific Northwest Laboratories for the National Science Foundation, Richland, Washington). See also Narin, *Corporate Technological Performance Assessment Based on Patents and Patent Citations*, O.E.C.D. Doc. No. DSTI/SPR/82.32 (June 1982) (paper presented at the Organization for Economic Cooperation and Development Workshop on Patent and Innovation Statistics, Paris).

A summary of the patent indicator technique developed by Battelle is contained in Campbell, *Patenting the Future — A New Way to Forecast Changing Technology*, THE FUTURIST 62-67 (1983).

42. Studies conducted in both the United States and Australia have found that small firms use patent

4. *Patents Protect Domestic Markets*

The U.S. patent system defends domestic markets against foreign competitors who copy U.S. products. The International Trade Commission (ITC) enforces section 337 of the Tariff Act of 1930 to reduce unfair competition from imports.⁴³ About seventy percent of the cases investigated by the ITC arise from patent-based complaints.⁴⁴ If the ITC finds imports infringing a U.S. patent, it can issue both exclusion orders to prevent those imports from coming into the United States and cease-and-desist orders to prevent the sale of items already imported.

A recent well-known case before the ITC involved a Pfizer, Inc., patent on Doxycycline. The ITC found the patent valid and issued an order excluding imports of Doxycycline by the importer unless the importation was licensed by the patent owner.⁴⁵ A district court later awarded to Pfizer almost \$56 million in damages — reportedly the largest patent award ever granted⁴⁶ — thus confirming both the economic value of patents and the utility of patents in protecting a company's investment in a new product.

5. *Patents Help Entry Into Foreign Markets*

Foreign patent protection helps U.S. firms enter foreign markets. Many U.S. industries have used successfully the patent system of other nations to help secure markets for exports and for the location of foreign subsidiaries. In 1982, the most recent year for which data are available, U.S. patentees filed over

information less often than do large firms. See J.H. OBERMAYER, *THE ROLE OF PATENTS IN THE COMMERCIALIZATION OF NEW TECHNOLOGY FOR SMALL INNOVATIVE COMPANIES* 30-31 (1981) (final report of a survey conducted for the U.S. Small Business Administration). See also AUSTRALIA PATENT OFFICE, *PILOT STUDY OF THE USERS OF PATENT INFORMATION AND THEIR NEEDS* (1980), cited in Manderville, Lambertson & Bishop, *The Use of Patent Information: Economics of Disclosure*, in *THE ECONOMIC IMPLICATIONS OF PATENTS IN AUSTRALIA* 271-94 (1981).

Some relatively small firms that are particularly R&D-intensive or innovative, however, are quite advanced in their use of patent information. For example, a representative of Corning Glassworks described that company's use of patent information in new technology development in a paper entitled *New Approaches to Technological Strategy: Using Patent Data*, presented at the May 30, 1983, meeting of the American Association for the Advancement of Sciences, in Detroit, Michigan.

43. 46 Stat. 703 (1930), 19 U.S.C. § 1337 (1982).

44. Communication with General Counsel's Office, U.S. International Trade Commission (Oct. 1983).

45. U.S. INTERNATIONAL TRADE COMMISSION, PUB. NO. 964, *IN THE MATTER OF DOXYCYCLINE* (1979) (Investigation No. 337-TA-3).

46. Pfizer has marketed the patented antibiotic Doxycycline under the name "Vibramycin" since 1967. In 1973, International Rectifier started selling a generic version of the drug, and Pfizer brought suit for infringement. The court ordered injunctive relief immediately when the patent was found valid and infringed. Damages were awarded later, taking into consideration lost sales, forced lowering of prices due to competition, lost profits, and missed opportunities to raise prices. The patent on Doxycycline expired in 1982. See *Pfizer, Inc. v. International Rectifier Corporation*, 218 U.S.P.Q. (BNA) 586 (C.D. Calif. 1983). See also 26 PAT. TRADEMARK & COPYRIGHT J. (BNA) No. 638, at 253 (1983).

123,000 patent applications in foreign nations and were issued over 58,000 foreign patents.⁴⁷

Multinational corporations often file their first or "priority" application for a patent on an invention in countries where their subsidiaries are located.⁴⁸ Eli Lilly, whose heavy Japanese patenting is tied to the existence of Shionogi Lilly, a partially owned Lilly subsidiary in Japan, illustrates the importance of patents to foreign direct investment.⁴⁹ Just as Japanese corporations have used patents very successfully to penetrate U.S. markets, so have U.S. corporations used patents as part of their exporting and foreign investing strategies.⁵⁰ However, U.S. industry could even more effectively use other national patent systems to penetrate foreign markets.

6. *Intellectual Property Provides International License Fee Income*

The level of international transactions in royalties and fees demonstrates the value of patents and trademarks to trade: Total U.S. receipts for royalties and fees reached more than \$7 billion in 1982, or more than twenty times the amount the United States paid in royalties and fees.⁵¹ Royalties and fees include receipts for the use of rights or intangible property⁵² and management fees.⁵³

Though separate statistics are not available on patents and trademarks, the major share of total receipts are related to patents, trademarks, copyrights, and industrial processes.⁵⁴ A recent study of over 100 international technology licens-

47. Calculations based on WORLD INTELLECTUAL PROPERTY ORGANIZATION, *supra* note 18, in 1982 EUROPEAN PATENT OFFICE ANNUAL REPORT 42 (1983), and in 5 P.C.T. Gazette, Feb. 17, 1983, at 481.

48. A priority application is one whose filing date is used as the filing date for applications filed later in other countries. Under the terms of the Paris Convention for the Protection of Industrial Property, an application filed in a member country within twelve months of the first-filed application in another member country will be accorded the filing date of the first — or "priority" — application. See J. Franklin, Patent Statistics as Technological Indicators: Analysis of the Patenting of Multinational Enterprises Selected from the U.S.A., Japan, and West Germany in the Pharmaceutical and Electrical Power Systems Industries 41, 77-88 (March 1983) (unpublished master's thesis, Georgia Institute of Technology, Atlanta).

49. *Id.* at 72.

50. For related discussions, see J. FRAME, *supra* note 14, at 104-07. See also Grabowski & Vernon, *The Pharmaceutical Industry*, in GOVERNMENT AND TECHNICAL PROGRESS 292-95 (R. Nelson ed. 1982).

51. Bureau of Economic Analysis, U.S. Dep't of Commerce, 63 SURVEY OF CURRENT BUSINESS 38-39 (1983) (Table 1 — U.S. International Transactions). Receipts for royalties and fees are calculated by adding items 7 and 8 in Table 1, while payments are calculated by adding items 23 and 24. Receipts in 1982 totaled \$7.139 billion and payments totaled \$337 million.

52. Such intangible property includes patents, trademarks, and copyrights, as well as techniques, processes, formulas, designs, franchises, and manufacturing rights.

53. Kroner, *U.S. International Transactions in Royalties and Fees, 1967-1978*, 60 SURVEY OF CURRENT BUSINESS 29 (1980).

54. In Kroner, *supra* note 53, at 29, royalties and fee data for affiliated firms have been broken down into "royalties and licensing fees" (which include receipts for patents, trademarks, copyrights, and industrial processes) and "management fees." Royalties and fees for unaffiliated firms consist mostly of royalties and licensing fees. Management fees are reportedly negligible. *Id.* at 31 n.10. Assuming that receipts of royalties and fees for unaffiliated firms consist entirely of royalties and licensing fees, then

ing agreements found that almost seventy percent involved patent rights.⁵⁵ Further, those agreements involving patent rights returned an average of over \$4.5 million, or four times the revenue that agreements without patented items or processes returned.⁵⁶ Therefore, patent rights are important in creating a revenue flow from licensing agreements.

7. Trademarks in Trade

Trademarks provide product recognition in the international marketplace which is vital to marketing goods abroad. The value of a trademark can be exceedingly high. In fact, trademarks have been frequently described as a company's most important and valuable asset.⁵⁷

The value of trademarks in the international marketplace is demonstrated by the extensive commercial counterfeiting of a wide variety of goods ranging from luxury items to general consumer items and industrial products, such as transistors, machine parts, agricultural chemicals, and even medical devices. While precise estimates are impossible to make, billions of dollars of counterfeit goods are sold each year.⁵⁸ These counterfeit sales hurt legitimate producers of goods and consumers who are deceived about the source of the goods they are purchasing. Often the goods the public purchases from counterfeiters are inferior, defective, or even harmful.⁵⁹ U.S. industry thus has a strong interest in not only maintaining strong trademark protection, but also reducing counterfeiting.

8. Patent Protection in Developing Countries

International trade with developing countries is very important to the United States. Developing countries purchased about forty percent of total U.S. merchandise exports in 1982, a share greater than that sold to Western Europe and Japan combined.⁶⁰ Over the last decade, the proportion of U.S. manufactured

royalties and licensing fees have constituted more than half of the total receipts in royalties and fees (for both affiliated and unaffiliated firms) every year since 1967, the first year for which data is available. Calculations are based on Table 2 — U.S. Receipts of Royalties and Fees, by Industry, for the Years 1967-1976, *id.* at 31, and an updated version of that table prepared by the Bureau of Economic Analysis, U.S. Department of Commerce, for the years 1977-1982 (using preliminary data).

55. Contractor, *The "Profitability" of Technology Licensing by U.S. Multinationals: A Framework for Analysis and an Empirical Study*, 11 J. INT'L BUS. STUD. 40-63 (1980).

56. *Id.* at 58.

57. For example, one Coca-Cola executive indicated the value of its trademark when he said that if all the plants and inventories of the Coca-Cola Company went up in flames one night, the next morning any bank in the world would lend the company funds to rebuild, with the security of the goodwill inherent in the trademarks "Coca-Cola" and "Coke." Lunsford, *Consumers and Trademarks: The Function of Trademarks in the Marketplace*, 64 TRADE-MARK REP. 81 (1974).

58. *Urgent Action Requested to Stem Counterfeiting*, 26 PAT. TRADEMARK & COPYRIGHT J. (BNA) 379-80 (1983).

59. *Id.*

60. See generally U.S. DEP'T OF STATE, U.S. PROSPERITY AND THE DEVELOPING COUNTRIES (1983).

exports to developing countries increased by one-third.⁶¹ Currently, the twelve fastest growing markets for U.S. exports are all in developing countries.⁶²

Alternatively, the United States bought about \$99 billion in goods from developing countries.⁶³ This was about forty-one percent of our imports and sixteen percent of total developing nation merchandise exports.⁶⁴ Since 1975, U.S. purchases from developing nations have increased at an annual rate of thirteen percent.⁶⁵ U.S. trade and capital markets are among the most open in the world.

Economic growth in developing countries depends on technological advancement, which in turn depends on providing incentives to those nations, incentives that realistically can only be achieved by rewarding creativity and innovation.⁶⁶ In a July 1982 International Labor Organization (ILO) report on Invention and the Patent System in the Third World, the author concluded that the patent system, which is "the most powerful policy instrument that has been used in the developed countries" for technological advancement, "could also help a technologically backward country in catching up with advanced nations."⁶⁷ The focus of the ILO study was to stimulate indigenous innovation and creativity. Similarly, the World Health Organization (WHO), in an April 1982 report by its Director-General, recommended that WHO acquire and use patents on its own inventions to promote the development, production, and wide availability of health technology.⁶⁸

In addition to stimulating indigenous invention and adaptation of new technology, strong and effective patent systems in developing countries encourage the flow and transfer of new technology to those countries.⁶⁹ Developing countries have a legitimate interest in having inventions worked (i.e., commercially manufactured or used) in their countries. But they must not lose sight of the advantages of importing high technology products into their markets.

The benefits of such importation are significant. Firstly, whether they involve

61. *Id.*

62. J. STARRELS, *THE U.S.-THIRD WORLD CONFLICT* 37 (1983) (a glossary prepared by the Heritage Foundation for the United Nations, Washington, D.C.).

63. See U.S. DEP'T OF STATE, *supra* note 60, at 2.

64. *Id.*

65. *Id.*

66. As President Reagan stated at the First Plenary Session of the International Meeting on Cooperation and Development, in Cancun, Mexico, on Oct. 22, 1981: "Government has an important role in helping develop a country's economic foundation. But the critical test is whether government is genuinely working to liberate individuals by creating incentives to work, save, and succeed." 17 WEEKLY COMP. PRES. DOC. 1185 (Nov. 2, 1981).

67. S. WATANABE, *INNOVATION AND THE PATENT SYSTEM IN THE THIRD WORLD: SOME POLICY ISSUES*, No. 1 WEP 2-22/WP.97 (July 1982) (International Labor Organization, Geneva, working paper).

68. U.N. World Health Organization, *Biomedical and Health Services Research — Relations with Industry and Policy on Patents 1-4* (April 1982) (report of the Director-General to the Thirty-Fifth World Health Assembly, Geneva).

69. See Contractor & Sagafi-Nejad, *International Technology Transfer: Major Issues and Policy Responses*, 12 J. INT'L BUS. STUD. 117 (1981). See also S. ROBOCK, *THE INTERNATIONAL TECHNOLOGY TRANSFER PROCESS* 6-7 (1980); E. JUCKER, *PATENTS — Why?* (1972); and E. JUCKER, *PATENTS — Why?* (1982).

life-saving drugs, agricultural chemicals, or machinery to increase crop yields, or new forms of transportation and communications, the high technology products themselves serve the citizens of developing countries. Secondly, in order to import a product effectively, an entire local infrastructure of sales personnel, training specialists, service technicians, and market outlets has to be established — often through joint ventures and other partnership arrangements. Finally, virtually all inventions build directly upon existing technology. Developing indigenous inventions therefore depends on a keen awareness locally of state-of-the-art technology, whether that technological capability is reflected in locally produced products or in products imported under appropriate terms and arrangements.⁷⁰

9. *The Role of the U.S. Patent and Trademark Office in Trade Expansion*

Because of its central role in the protection of new technology, the U.S. Patent and Trademark Office has been quite active in international affairs. The major focus of recent PTO international efforts has been the Third Session of the Diplomatic Conference on the Revision of the Paris Convention, held in October and November 1982, and the Fourth Session of the Conference, held in February and March 1984.⁷¹

The United States was greatly encouraged by the results of the Third Session. As was widely reported, the United States came very close to an agreement that would have eliminated the possibility of a country being able to issue compulsory exclusive licenses for failure to work patents.⁷² Such licenses, in the United States' view, would be a totally unacceptable expropriation of private property and counterproductive to the legitimate desires of developing countries to upgrade their technological capability.

The significant progress toward agreement that was achieved in the Third Session of the Conference was not continued in the Fourth Session, and the Fourth Session ended without an agreement being reached.⁷³ While the Plenary

70. See U.N. World Health Organization, *supra* note 68, at 36-40.

71. Paris Convention for the Protection of Industrial Property of March 20, 1983, *done* July 14, 1967, 21 U.S.T. 1583, T.I.A.S. No. 6923; 24 U.S.T. 2140, T.I.A.S. No. 7727.

72. The Paris Convention permits a country to issue anyone a license to use a patent when the owner of the patent or his/her voluntary licensee has not worked the invention in the country. The license can be issued notwithstanding the objection of the patent owner — hence, "compulsory license." At an earlier session of the Diplomatic Conference, agreement was nearly reached on making such licenses exclusive, which would have excluded patent owners from using their patents. See *The World International Property Organization in 1982*, in *INDUSTRIAL PROPERTY* 87-88, 100-09 (1983). See also *Paris Convention Meeting Fails to Resolve Compulsory Licensing Issue*, 25 *PAT. TRADEMARK & COPYRIGHT J.* (BNA) 133, 141-46 (1982).

73. Patent & Trademark Office, U.S. Dep't of Commerce, *International Conference on Patent, Trademark Agreement Ends in Stalemate* (March 26, 1984, news release). See also *Paris Convention Talks Fail to Reach Agreement on Compulsory License Issue*, 27 *PAT. TRADEMARK & COPYRIGHT J.* (BNA) 519 (1984).

of the Conference did not set a date for a Fifth Session, the Plenary did call for one to be convened as soon as there were prospects for positive results.⁷⁴ The Plenary also requested that an extraordinary session of the Paris Union Assembly (the governing body of the Paris Convention) be convened in September 1984 in order to consider setting up the machinery for preparations for a Fifth Session.⁷⁵

At the General Assembly of the World Intellectual Property Organization (WIPO) held in late September and early October 1983, the U.S. delegation, which I was honored to head, strongly supported those programs of WIPO specifically aimed at assisting developing countries to establish and improve systems of protection for intellectual property. The U.S. delegation announced at the meeting that the PTO was establishing a \$100,000 fund, to be administered jointly by the PTO and WIPO, to provide training opportunities and other assistance for nationals of developing countries.⁷⁶

In May 1983, in the first phase of a program to strengthen ties with developing countries in intellectual property matters, the PTO entered into a cooperative agreement with the African Intellectual Property Organization (OAPI), the twelve-nation, French-speaking, African Patent Office. Under a principal aspect of that agreement, examiners from OAPI will attend the PTO's Patent Academy and become familiar with the PTO's processing and automated systems. The agreement with OAPI is part of a major effort to facilitate the training of patent and trademark professionals from other countries. This January, at the invitation of the Director-General of OAPI, I met with officials of the twelve nations that make up OAPI to discuss the Paris Convention revision efforts and other ways of improving cooperation.

In other areas, the PTO has trained more than a dozen Chinese patent and trademark officials and sponsored lectures on patent and trademark law in China. The PTO's Administrator for Documentation spent three weeks in China helping the Chinese to establish patent documentation centers in Beijing and six other cities. The PTO has provided collections of U.S. patents to aid the Chinese, Brazilian, and Indonesian patent offices in establishing effective documentation centers. The Office sent a number of experts to assist in the modernization of the Brazilian patent office. The PTO is sending experts to Argentina and Mexico to assist in the automation of their patent and trademark systems. A PTO expert provided an evaluation to the government of Malaysia concerning its documentation facilities. The Office also provided training in all aspects of operating an intellectual property office to eight Korean nationals. Together with officials

74. World Intellectual Property Organization, Diplomatic Conference on the Revision of the Paris Convention, Fourth Session, W.I.P.O. Doc. No. PR/DC/56 (March 23, 1984).

75. *Id.*

76. World Intellectual Property Organization, General Report of the Governing Bodies of WIPO, W.I.P.O. Doc. No. AB/XIV/13, at 5, para. 17 (Oct. 17, 1983).

from the State Department, the Office of the U.S. Trade Representative, and the International Trade Administration, the PTO has raised intellectual property protection problems in bilateral trade discussions with officials from Mexico, Hungary, Romania, and Yugoslavia.

The President's Cabinet Council on Commerce and Trade has taken a strong position supporting measures to attack the counterfeiting of goods domestically and worldwide.⁷⁷ The Chairman pro tempore of that Cabinet Council is Secretary of Commerce Malcolm Baldrige. In line with the decision of the Cabinet Council, the PTO is working closely with the Office of the U.S. Trade Representative (USTR) to secure adoption of an effective anti-counterfeiting code under the auspices of the General Agreement on Tariffs and Trade (GATT). The PTO's Assistant Commissioner for External Affairs, Michael Kirk, has worked with representatives of the American Intellectual Property Law Association, the U.S. Trademark Association, the Patent, Trademark and Copyright Law Section of the American Bar Association, the International Anti-Counterfeiting Coalition, and the Department of Justice to reach agreement on legislation to enact heavy criminal sanctions and increased civil remedies for counterfeiting. These measures are incorporated into S. 875, which was introduced by Senator Mathias, Chairman of the Senate Judiciary Subcommittee on Patents, Copyrights and Trademarks, and H.R. 2448, which was introduced by Congressman Rodino, Chairman of the House Committee on the Judiciary.⁷⁸ The Cabinet Council strongly supports the imposition of criminal sanctions and increased civil remedies for counterfeiting such as those contained in S. 875 and H.R. 2447.⁷⁹ Several of the Administration's recommendations were incorporated in S. 875 as reported by the Senate Judiciary Committee on May 10, 1984.⁸⁰ Assistant Commissioner Kirk has also headed delegations to South Korea and twice to Taiwan to discuss U.S. concerns about the counterfeiting of goods, as well as other issues involving effective protection of intellectual property.

The PTO is working closely with the International Trade Administration in its efforts in the joint U.S.-Japan Working Group on High Technology Industries. That Working Group was established to ensure that trade in high technology products between the two countries is on an even footing without artificial restraints or barriers.⁸¹ Within the framework of the Working Group, the PTO has cooperated closely with the Office of the USTR to persuade Japan to retain protection for computer software under the copyright law. During 1983, the

77. G.J. Mossinghoff, Testimony before the Subcommittee on Crime of the House Committee on the Judiciary, Hearings on H.R. 2447, at 1 (Nov. 3, 1983).

78. H.R. 2447, 98th Cong., 1st Sess., 129 CONG. REC. H1861 (daily ed. Apr. 7, 1983); S. 875, 98th Cong., 1st Sess., 129 CONG. REC. S3646 (daily ed. Mar. 22, 1983).

79. See Mossinghoff, *supra* note 77, at 3.

80. 130 CONG. REC. D627 (daily ed. May 10, 1984).

81. U.S. Dep't of Commerce, U.S.-Japan Agree to Improve Access to High Technology, Press Release No. G83-6 (Feb. 10, 1983).

Japanese Ministry of Trade and Industry (MITI) had drafted a legislative proposal which would have withdrawn computer software from protection under the copyright law in Japan and would, among other things, have provided for a greatly reduced term of protection and for compulsory licensing. Due in great measure to the efforts of U.S. representatives at meetings of the U.S.-Japan Working Group on High Technology in early 1984, MITI abandoned its effort to introduce its legislative proposal to the Diet for the time being.

In October, we hosted the first trilateral conference of the European Patent Office, the Japanese Patent Office, and the PTO at the State Department in Washington, D.C. The main objectives of this conference were first, to exchange detailed information regarding the status of automation programs, search studies, documentation projects, and existing exchange agreements; second, to agree on joint or cooperative projects to be undertaken during the next two years; and third, to discuss means of promoting worldwide dissemination of intellectual property information. One of the United States' principal goals in this trilateral partnership was to acquire for U.S. businesses patent documentation from the European and Japanese patent offices in English and in a form which can be readily disseminated. The three offices reached a landmark agreement to exchange technical personnel, documents, microfilm, and electronic data and to cooperate as each office automates its operations.⁸²

10. *Conclusion*

The steps the U.S. Patent and Trademark Office is taking will improve protection for intellectual property worldwide. This, in turn, will strengthen trade opportunities for all nations and increase access of developing nations to the new technology so essential for their continued development.

⁸² U.S., *European, Japanese Patent Offices Agree to Share Data*, 26 PAT. TRADEMARK & COPYRIGHT J. (BNA) 557 (1983). See also *id.* at 574-75 for text of Memorandum of Understanding.