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TRIPS--Natural Rights and a "Polite Form of Economic Imperialism"

A. S. Oddi

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ABSTRACT

This Article discusses the current predominance of natural rights theory in the area of intellectual property and of patents in particular. Due to the alleged problems of international theft and pirating of patents, the recent GATT negotiations saw intellectual property law come to center stage in the debate over trade. These negotiations concluded that trade-related aspects of intellectual property law can no longer be left to the public policy of individual countries, but require new international minimum standards.

The author discusses how the basic principles of natural rights theory have been used to convince the world community to move toward a universal world standard of intellectual property law. By using the concept of natural rights, all countries must thus recognize the natural property rights entitlement of the inventor. Thus, copying an invention is considered "immoral" by the community of nations and the rights of the inventor must be protected by positive law. However, the author notes that developing countries may not be as eager as developed nations to accept a natural rights premise.

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The title of this Article is based on a statement by J.H. Reichman. J.H. Reichman, *Intellectual Property in International Trade: Opportunities and Risks of a GATT Connection*, 22 VAND. J. TRANSNAT'L L. 747, 813 (1989). Professor Reichman attributes this thought to Steven P. Ladas stating: "Imposition of foreign legal standards on unwilling states in the name of 'harmonization' remains today what Ladas deemed it in 1975, namely, a polite form of economic imperialism." *Id.* (citing 1 STEVEN P. LADAS, PATENTS, TRADEMARKS, AND RELATED RIGHTS: NATIONAL AND INTERNATIONAL PROTECTION 14-15 (1975)).

The author seeks to establish the premise that the patent portion of TRIPS implements a natural property rights theory of patents by closely analyzing different TRIPS provisions. Professor Oddi also discusses how patents and inventors will be treated under such a theory and the different provisions. He then attempts to justify TRIPS independent of natural rights by analyzing the relevant provisions according to various economic theories of patents. Professor Oddi suggests that economic theories do not clearly support the natural rights theory of TRIPS. He concludes the Article by determining the economic results of transforming patents to universal entitlements as natural rights by focusing on the different impacts of such a theory on developed and developing nations. The author also suggests various strategies for developing countries to cope with TRIPS. Finally, Professor Oddi questions whether implementing TRIPS is likely to provide the promised economic advantages to either developing or developed nations.

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> There is in all [people] a demand for the superlative, so much so that the poor devil who has no other way of reaching it attains it by getting drunk. It seems to me that this demand is at the bottom of the philosopher's effort to prove that truth is absolute and of the jurist's search for criteria of universal validity which [the jurist] collects under the head of natural law.
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> Justice Holmes[1]

> I heartily agree with the Court that 'fraud' is bad, 'piracy' is evil, and 'stealing' is reprehensible. But in this case . . . .
>
> Justice Black[2]

I. INTRODUCTION—THE *REALPOLITIK* OF NATURAL PROPERTY RIGHTS

As a school of jurisprudential thought, natural law surely is not at the forefront in the last throes of the twentieth century.[3] Yet, in the sometimes scholastic world of intellectual property,[4] and of patents in particular, as subsumed into the often dog-eat-dog world of international trade, natural rights, presumably derived from natural law, has become the preeminent theory (even if in somewhat corrupted or disguised form).[5] Principal

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1. Oliver Wendell Holmes, *Natural Law*, 32 HARV. L. REV. 40 (1918).

2. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 612 (1950) (Black, J., dissenting).

3. "The natural-law tradition is not one that has generated much enthusiasm in the contemporary world outside of Roman Catholic circles." GEORGE C. CHRISTIE, JURISPRUDENCE 78 (1973). As put by Professor Cohen:

> To defend a doctrine of natural rights today, requires either insensitivity to the world's progress or else considerable courage in the face of it. Whether all doctrines of natural rights of [humanity] died with the French Revolution or were killed by historical learning of the 19th century, everyone who enjoys the consciousness of being enlightened knows that they are, and by rights ought to be, dead. The attempt to defend a doctrine of natural rights before historians and political scientists would be treated very much like an attempt to defend the belief in witchcraft.

M.R. COHEN, REASON AND NATURE 401 (1931), *reprinted in* PHILIP SHUCKMAN, COHEN AND COHEN'S READINGS IN JURISPRUDENCE AND LEGAL PHILOSOPHY 565 (1979). M.R. Cohen is described as "[a U.S.] naturalist philosopher." *Id.* at 81.

4. Dawson Chemical Co. v. Rohm & Haas Co., 448 U.S. 176, 188 (1980) ("[u]nder the sometimes scholastic law of patents . . ."). As stated by Justice Story in *Folsom v. Marsh*, 9 F. Cas. 342, 344 (C.C.D. Mass. 1841) (No. 4901), "Patents and copyrights approach nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law, where the distinctions are, or at least may be, very subtle and refined, and, sometimes, almost evanescent."

5. It is true, for example, that the various natural-rights theories did find their roots in the natural-law tradition and it is true that those who, at various

attention is given here to patents because of their perceived importance in international trade and the radical changes in the international patent system affected by TRIPS.[6]

Until TRIPS, the prevailing theory of patents, at both the national and international levels, seemed to be essentially an instrumentalist form of "reward" theory.[7] The state offers a reward in the form of a time-limited monopoly to induce inventors to invent. The underlying instrumentalist premise is that, without the inducement of the monopoly award, an inadequate number of inventions would be created, to the detriment of

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times, have been opposed to legal, social, or economic change have often tried to support their positions by reference to a natural law. But, there is no necessary connection between what can legitimately be called the natural-law tradition and the natural-rights theories and certainly none between this tradition and political conservatism. CHRISTIE, *supra* note 3, at 78. "Those who invoke natural law for judicial creation of supra-constitutional rights can hardly insist that natural law is to be distinguished from natural rights." Raoul Berger, *Activist Censures of Robert Bork*, 85 NW. U. L. REV. 993, 1020 (1991). *See infra* text accompanying notes 76-81 (discussing the rhetorical use and ambiguity in the jurisprudential basis for TRIPS).

6. This Article will explore whether harmonization under the Trade-Related Aspects of Intellectual Property Agreement (TRIPS) imposes the same form of politeness. As used herein, "Patent TRIPS" refers to Section 5 (Articles 27-34). *See* Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Apr. 15, 1994 [hereinafter Final Act], *reprinted in* THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS—THE LEGAL TEXTS 2-3 (GATT Secretariat ed., 1994) [hereinafter RESULTS OF THE URUGUAY ROUND]; Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994 [hereinafter WTO Agreement], Apr. 15, 1994, Annex 1C: Agreement on Trade-Related Aspects of Intellectual Property Rights [hereinafter TRIPS Agreement], *reprinted in* RESULTS OF THE URUGUAY ROUND, *supra*, at 6-19, 365-403. For U.S. congressional approval, see Uruguay Round Agreements Act, Pub. L. No. 103-465, §§ 101-103, 108 Stat. 4809 (1994) [hereinafter URAA] (authorizing the President to accept the Uruguay Round Agreements and implement the WTO Agreement, but denying treaty status and domestic legal effect to the Uruguay Round Agreements as such, and excluding private actions under those agreements).

7. The instrumental form of reward theory should be distinguished from a natural-law-based reward theory. For a consideration of the latter form, see EDITH TILTON PENROSE, THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM 21-31 (1951); FRITZ MACHLUP, SENATE SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS, 85TH CONG., 2D SESS., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 21 (Comm. Print 1958) [hereinafter MACHLUP]. The reward theory has also been applied as an economic theory. *See* WARD S. BOWMAN, JR., PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL 15-32 (1973) and *infra* text accompanying notes 50-65. The term "instrumentalist" is used herein in the broad sense, rather than being limited to a strict utilitarian sense. *See* ALAN RYAN, PROPERTY AND POLITICAL THEORY 7 (1984) [hereinafter RYAN, PROPERTY & POLITICAL THEORY]. "[A] strict utilitarian would, in principle, though less certainly in practice, be relatively deaf to questions about justice or fairness." *Id.* at 8.

society.[8] This general theory dates at least from the first general patent statute of the Venetian Republic in 1474:

> We have among us [people] of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our City, more such [people] come to us every day from divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor's honor away, more [people] would then apply their genius, would discover, and would build devices of great utility and benefit to our Commonwealth.[9]

Accordingly, the reward of exclusivity is offered as the inducement to invent. There is, nonetheless, a hint of a "natural," or at least a "personal," right in the idea that copiers would take away the "inventor's honor."

Monopolies, in general, fell upon hard times due to the abuses of the Tudor kings in England.[10] The Statute of

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8. Professor Turner questions both aspects of the premise:

> The basic rationale of the patent system can be simply put. The economic case rests upon two propositions: first, that we should have more invention and innovation than our economic system would provide in the absence of special inducement; and second, that the granting of a statutory monopoly to inventors for a period of years is the best method of providing such special inducement. In addition to the economic case, there is a rather widespread view, which is essentially a moral argument, that the creator or discoverer of new and useful knowledge is rightfully entitled to the economic value to society of what he [or she] has done, and that it is unfair and inequitable for others to profit from the use of this knowledge without appropriately rewarding the inventor.
>
> None of these propositions is entirely free from doubt, and two of them—that the patent system is the best form of inducement to more invention and innovation, and that it is morally well founded—are highly questionable.

Donald F. Turner, *The Patent System and Competitive Policy*, 44 N.Y.U. L. REV. 450, 450-51 (1969). *See also* Paul A. David, *Intellectual Property Institutions and the Panda's Thumb: Patents, Copyrights, and Trade Secrets in Economic Theory and History*, *in* OFFICE OF INT'L AFF. NAT'L RES. COUNCIL, GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY 21 (Mitchel B. Wallerstein et al. eds., 1993) [hereinafter GLOBAL DIMENSIONS] (raising the unanswered empirical questions of whether the faster growth of scientific and technological knowledge is always a "good thing" and whether the creation of socially needed inventions is responsive to economic incentives).

9. Giulio Mandich, *Venetian Patents (1450-1550)*, 30 J. PAT. OFF. SOC'Y 166, 176-77 (1948) (translated by F.D. Prager from Giulio Mandich, *Le Privative Industriali Veneziane (1450-1550)*, 34 RIVOSTA DI DIRITTO COMMERCIALE 511 (1936)).

10. *See* 1 WILLIAM C. ROBINSON, THE LAW OF PATENTS § 6 (1890) (explaining Queen Elizabeth I's use of monopolies for personal and political reasons). By the end of her reign, monopolists controlled the market for staples, such as, salt, iron, powder, vinegar, bottles, saltpeter, oil, starch, and paper, with corresponding monopolistic pricing. *Id.* *See also* 1 ERNEST BAINBRIDGE LIPSCOMB

Monopolies of 1623 barred monopolies solely from the "buying, selling, making, working or using of any thing within this realm."[11] However, patents for inventions, which were excluded, could be granted for fourteen years or less for the exclusive working or making of inventions within the realm.[12] The need to exempt patents for inventions from the general prohibition of monopolies clearly undercuts any natural right of exclusivity for inventors in their inventions.[13]

Monopolies were hardly favorites of the United States Founding Fathers.[14] Thomas Jefferson originally urged that the Bill of Rights proscribe monopolies, including limited monopolies.[15] After the drafting of the Bill of Rights, however, Jefferson agreed that time-limited monopolies for literature and inventions would be desirable in a constitutional provision.[16] Summarizing Jefferson's views, the Supreme Court in *Graham v. John Deere Co.* stated:

> He rejected a natural rights theory in intellectual property rights and clearly recognized the social and economic rationale of the patent system. The patent monopoly was not designed to secure to the inventor[s] . . . natural right[s] in [their] discoveries. Rather it was a reward, an inducement, to bring forth new knowledge.[17]

As finally ratified in the U.S. Constitution, Article 1, section 8, clause 8 grants Congress the power "to promote the progress of Science and the useful Arts, by securing for limited times to Authors and Inventors the exclusive right to their respective writings and discoveries." As patents were to be granted for limited times in order to promote the "useful Arts," there is no

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III, LIPSCOMB'S WALKER ON PATENTS § 1:2 (3d ed. 1984) (describing early common law monopolies in England); Edward C. Walterscheid, *To Promote the Progress of Science and the Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1 (1994) (discussing United States opposition to the English monopoly theory and practice).

11. An Act Concerning Monopolies and Dispensations of Penal Laws, and the Forfeitures Thereof, 1623, 21 Jam. 1, ch. 3, § I (Eng.).

12. *Id.* § VI.

13. Indeed, patent monopolies were in derogation of the common law, monopolies having been held illegal. *See* Darcy v. Allen (The Case of Monopolies), 72 Eng. Rep. 830 (1602). *See also* ROBINSON, *supra* note 10, §§ 9, 12.

14. Graham v. John Deere Co., 383 U.S. 1, 7 (1965) (noting that Jefferson and other notable U.S. citizens abhorred monopolies).

15. *Id.* at 7-8. "[T]he benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression." V THOMAS JEFFERSON, THE WRITINGS OF THOMAS JEFFERSON 47 (Paul Leicester Ford ed., 1895).

16. Jefferson moderated his views and approved of monopolies for literature and inventions. *Id.* at 113. Jefferson made it clear that such a grant was in the nature of a privilege and not a natural right. *Graham*, 383 U.S. at 8 n.2.

17. 383 U.S. at 8-9.

indication of an inventor's natural right to a patent, but rather patents are to be granted as a privilege according to congressional enactment for the indicated instrumentalist purpose.[18]

In the "age of enlightenment," practically contemporaneous with the constitutional deliberations in the United States, a distinct theory of intellectual property rights was evolving in France.[19] With evident revolutionary zeal, intellectual creations were declared to be among the "rights of man."[20] Indeed, the preamble of the French Patent Act 1791 provides:

> Every novel idea whose realization or development can become useful to society belongs primarily to [the person] who conceived, it would be a violation of the rights of [humanity] in their very essence if an industrial invention were not regarded as the property of its creator.[21]

Nonetheless, this "right of man" as an "entitlement" of the inventor was time limited and carried with it a "natural duty" to work the invention in France in order to maintain its exclusivity.[22] Moreover, it was not only inventors who could share in this "natural right" but also those who imported an invention into France.[23]

In the nineteenth century, a number of countries enacted patent statutes, apparently based on an instrumentalist philosophy.[24] Some anti-patent sentiment, however, did arise

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18. "Innovation, advancement and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must 'promote the progress of . . . useful Arts.' This is the *standard* expressed in the Constitution and it may not be ignored." *Id.* at 6.

19. "[W]hat we now see in the world, from the revolutions of [the United States] and France, are a renovation of the natural order of things, a system of principles as universal as truth and the existence of [humanity], and combining moral with political happiness and national prosperity." THOMAS PAINE, RIGHTS OF MAN 118 (1987).

20. DECLARATION OF THE RIGHTS OF MAN AND CITIZEN, art. 11 (1789), *reprinted in* RETT R. LUDWIKOWSKI & WILLIAM F. FOX, JR., THE BEGINNING OF THE CONSTITUTIONAL ERA 225 (1993). This article of the Declaration was adopted by the National Assembly during the French Revolution on August 26, 1789, and reaffirmed by the Constitution of 1958. *Id.*

21. 2 *Lois & Actes du Government* (1790-91), *reprinted in part and translated in* Frank D. Prager, *A History of Intellectual Property From 1545-1787*, 26 J. PAT. OFF. SOC'Y. 711, 756-57 (1944) [hereinafter *Lois & Actes*].

22. *Id.* § 16 (working required within two years except for good reason).

23. *Id.* § 3 ("The first person to import a foreign discovery into France shall enjoy the same advantages as if [that person] were the inventor thereof.").

24. *See* 1 STEVEN P. LADAS, PATENTS, TRADEMARKS, AND RELATED RIGHTS: NATIONAL AND INTERNATIONAL PROTECTION 7 n.27 (1975) (listing countries adopting patent legislation during the 19th century).

later in the century, primarily at the instance of economists.[25] For example, the Netherlands repealed its patent statute in 1869 and did not reenact one until 1910, which hardly reflects any natural rights sentiment.[26]

The end of the nineteenth century also saw the establishment of an international patent regime under the Paris Convention for the Protection of Industrial Property of 1883 (Paris Convention or Convention).[27] This Convention adopted a minimalist approach imposing very few requirements on its members—the two basic ones being national treatment[28] and a right of priority[29] to encourage the early disclosure of foreign inventions.

According to national treatment, the only requirement on a member of the Paris Union is that foreigners must be treated like nationals.[30] Each member state is thus free to establish the formal and substantive provisions of its domestic patent regime, including protectable subject matter, conditions for protection, and scope and duration of protection.[31] National treatment is the antithesis of a natural right. Can it be said that an inventor has a natural right to patent protection in one country yet that invention is free for the taking in another, while both are in full compliance with the Paris Convention? Do inventors of whatever nationality have an entitlement as a natural right in the country that protects, but none, not even a privilege, in nonprotecting countries? The closest the Paris Convention seems to come to

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25. *See* PENROSE, *supra* note 7, at 12-17 (1973) (discussing 19th century patent controversy). *See generally* Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1 (1950).

26. PENROSE, *supra* note 7, at 15. It is interesting to note that neither the Netherlands nor Switzerland had patent statutes, while being original signatories and adherents to the Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, *as last revised*, July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305 [hereinafter Paris Convention]. Even when Switzerland enacted a patent statute in 1888, it excluded processes. PENROSE, *supra* note 7, at 16, 123-24. *See also*, ERIC SCHIFF, INDUSTRIALIZATION WITHOUT NATIONAL PATENTS (1971).

27. Paris Convention, *supra* note 26.

28. *Id.* art. 2.

29. *Id.* art. 4 (providing a priority period of 12 months with respect to application for utility patents).

30. *Id.* art. 2, ¶ 1 ("Nationals of any country of the Union shall, as regards to the protection of industrial property, enjoy in all the other countries of the Union the advantages that their respective laws now grant, or may hereafter grant, to nationals. . . .").

31. It should be noted that the Paris Convention does impose some limitations on members with respect to requirements for grant of priority (art. 4); independence of patents (art. 4*bis*); grant of compulsory licenses and forfeitures (art. 5). *Id.* arts. 4, 4*bis*, 5.

any form of natural or personal right is the right to be named as inventor in the patent document itself.[32]

In sum, there seems very little that could reasonably be categorized as a natural right in intellectual property law,[33] particularly with reference to patents at both the national and international levels, until this theory was introduced into the Uruguay Round of GATT in the late twentieth century.[34]

The political and economic motivations for TRIPS have been admirably documented elsewhere,[35] but may be briefly

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32. Article 4*ter* of the Paris Convention provides: "The inventor shall have the right to be mentioned as such in the patent." *Id.* art. 4*ter*. This provision, however, did not appear in the original 1883 version, being added at the London Conference in 1934. Moreover, the inventors can waive their rights, which undercuts any status even as a personal right. *See* G.H.C. BODENHAUSEN, GUIDE TO THE APPLICATION OF THE PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY 24 (1969).

33. If there is any long-lasting legal incident of the "rights of man" in intellectual property law, it would appear to be the continued adherence to "moral rights" in copyright law. The United States, however, has shown little enthusiasm for such a doctrine, even after finally adhering in 1988 to the Berne Convention for the Protection of Literary and Artistic Works of Sept. 9, 1886, *as last revised* July 24, 1971, 828 U.N.T.S. 221 [hereinafter Berne Convention]. References herein will be to the Paris text. *See id.* art. 6*bis* (*Moral Rights*). *See generally* 2 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8D.02 (1995) (discussing moral rights under U.S. law).

34. *See generally* Final Act, *supra* note 6; THE GATT URUGUAY ROUND: A NEGOTIATING HISTORY Ch. 2 (1995) (discussing Trade Related Aspects of Intellectual Property Rights) [hereinafter NEGOTIATING HISTORY].

35. The literature is extensive. *See generally* NEGOTIATING HISTORY, *supra* note 34 (overall negotiating background of the Uruguay Round). Two excellent symposia deal with the early history of TRIPS: Symposium, *Trade-Related Aspects of Intellectual Property: Intellectual Property Negotiations in the GATT Multilateral Framework*, 22 VAND. J. TRANSNAT'L L. 223-384 (Pt.I), 689-922 (Pt.II) (1989); see, in particular, R. Michael Gadbaw, *Intellectual Property and International Trade: Merger or Marriage of Convenience?*, 22 VAND. J. TRANSNAT'L L. 223 (1989); Carlos Alberto Primo Braga, *The Economics of Intellectual Property Rights and the GATT: A View from the South*, 22 VAND. J. TRANSNAT'L L. 243 (1989); Robert W. Kastenmeier & David Beier, *International Trade and Intellectual Property: Promise, Risks, and Reality*, 22 VAND. J. TRANSNAT'L L. 285 (1989); Frederick M. Abbott, *Protecting First World Assets in the Third World: Intellectual Property Negotiations in the GATT Multilateral Framework*, 22 VAND. J. TRANSNAT'L L. 689 (1989); William M. Walker, *Uruguay Round TRIPS: A Bibliographic Essay*, 22 VAND. J. TRANSNAT'L L. 911 (1989); J. H. Reichman, *Intellectual Property in International Trade: Opportunities and Risks of a GATT Connection*, 22 VAND. J. TRANSNAT'L L. 747 (1989) (hereinafter Reichman, *GATT Connection*]; GATT OR WIPO? NEW WAYS IN THE INTERNATIONAL PROTECTION OF INTELLECTUAL PROPERTY (Friedrich-Karl Beier & Gerhard Schricker eds., 1989). For a European viewpoint, see Hans Peter Hunz-Hallstein, *The U.S. Proposal for a GATT-Agreement on Intellectual Property and the Paris Convention for the Protection of Intellectual Property*, 22 VAND. J. TRANSNAT'L L. 265; Wolfgang Fikentscher, *GATT Principles and Intellectual Property Protection*, 22 VAND. J. TRANSNAT'L L. 99 (1989); Hanns Ullrich, *GATT: Industrial Property Protection, Fair*

summarized: Industry groups (lobbyists) in developed countries, particularly in the United States, found a receptive government ear to their plea that their intellectual property was being "counterfeited," "pirated," "stolen," and "infringed" to their detriment and to the detriment of intellectual property-exporting countries by a generally bad lot in certain countries.[36] Moreover,

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Trade and Development, 22 VAND. J. TRANSNAT'L L. 127 (1989). *See generally* GENERAL ACCOUNTING OFFICE, INTERNATIONAL TRADE: STRENGTHENING WORLDWIDE PROTECTION OF INTELLECTUAL PROPERTY RIGHTS (1987) [hereinafter GAO REPORT] (describing the administration's use of multilateral and bilateral negotiations with respect to "problem" countries); UNITED STATES INTERNATIONAL TRADE COMMISSION, FOREIGN PROTECTION OF INTELLECTUAL PROPERTY RIGHTS AND THE EFFECT ON U.S. INDUSTRY AND TRADE (1988) (study estimating loss to U.S. industries due to inadequate intellectual property protection in foreign countries); EDWARD SLAVKO YAMBRUSIC, TRADE RELATED APPROACHES TO THE PROTECTION OF INTELLECTUAL PROPERTY (1992).

36. *See, e.g.*, GAO REPORT, *supra* note 35, at 9:

> Intellectual property pirates are often in a better position than legitimate producers to satisfy demand in newly industrialized countries since they generally enjoy lower production costs. Because pirates merely copy products rather than developing their own, their design and/or research and development costs are often minimal. They pay no royalties to those who originally developed the intellectual property. Advertising and market development costs are not key concerns as their markets are largely created for them by the efforts and at the expense of companies selling authentic products. Moreover, because they copy only products with proven market success, pirates escape the cost of developing products that turn out to be market failures.

See also Gadbaw, *supra* note 35, at 233:

> If these [intellectual] assets are as vulnerable to plunder as the slow-moving merchant ships of the 1700s were to the Barbary pirates, the United States ability to trade with countries that harbor such pirates could be seriously hampered. Harm to United States interests is exacerbated when the pirates can turn around and exploit their bounty by reproducing it for sale in domestic and foreign markets as though it were their own, thereby further damaging the export potential of United States industry.

See also Clayton Yeutter, *Negotiating Intellectual Property Rights Protection*, *in* INTELLECTUAL PROPERTY RIGHTS AND CAPITAL FORMATION IN THE NEXT DECADE 109, 112 (Charles E. Walker & Mark A. Bloomfield eds., 1988):

> If any country, whether it be a developing country or a developed country, has to depend upon the piracy of intellectual property in order to hold down consumer costs, whether it be food or drugs or whatever, that is an indefensible way to run any society. I don't see how any nation in the world can defend piracy in the context of preservation of low consumer costs for food or drugs or anything else. So we need to deal with it wherever the problem may be.

If a rhetorical question could be permitted with regard to Mr. Yeutter's statement made while he was U.S. Trade Representative, would a country be justified in using slave, child, or prison labor to keep costs down as long as no "piracy" was

they were able to convince their governments that anticounterfeiting measures on an international level were not enough. The real problem was that many of the countries that condemned such "illegal" conduct failed to provide adequate intellectual property protection.[37]

The World Intellectual Property Organization (WIPO), which presumably had jurisdiction over international intellectual property matters, was incapable or unwilling to deal with the problem of inadequate intellectual property protection.[38] This inability was supposedly the result of the block power exerted by developing countries in WIPO and the tension between developed and developing countries, which had resulted in a stalemate in the revision of the Paris Convention over the past two decades.[39]

An anticounterfeiting code had been introduced at the end of the Tokyo Round of GATT negotiations, but it was not adopted.[40] GATT provided a much more commodious venue for developed countries. They could use the leverage of trade and access to their markets against developing countries rather than merely dealing with the minutiae of intellectual property.[41]

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involved? *See also* Reichman, *GATT Connection*, *supra* note 35, at 775-800 (discussing the broad and rhetorical use of "piracy" and "infringement").

37. *See, e.g.*, GAO REPORT, *supra* note 35, at 35:

> In its April 1986 policy statement, the administration outlined two proposals for GATT action: (1) complete and implement an "anticounterfeiting" code aimed at eliminating market access for imported goods that counterfeit or infringe trademarks and (2) conclude an enforceable agreement against trade distorting practices arising from inadequate protection of intellectual property rights.

38. WIPO initially seemed to lack interest in the forum dispute and was evidently willing to concede jurisdiction to GATT. WIPO was reported as stating that "it has neither the funds nor the mandate from its members to consider the issue." *GATT Expert Group Ready to Draft Report, but Industrial Nations, LDCs Still Split*, 2 INT'L TRADE REP. 934, 934 (1985). *See also* Monique L. Cordray, *GATT v. WIPO*, 76 J. PAT. & TRADEMARK OFF. SOC'Y 121, 141 (1994). As summarized by Professor Merges: "From the perspective of those concerned with enhanced protection, an increasingly lethargic and bureaucratized WIPO forced these issues into GATT, relevant or not." Robert P. Merges, *Battle of Lateralisms: Intellectual Property and Trade*, 8 B.U. INT'L L.J. 239, 240 (1990).

39. *See* GAO REPORT, *supra* note 35, at 26 (developing countries wanted the authority to grant exclusive compulsory licenses, to permit forfeiture before granting compulsory licenses, and to grant compulsory license to forfeit within shorter time periods).

40. *See* NEGOTIATING HISTORY, *supra* note 34, at 2259-60.

41. *See* GAO REPORT, *supra* note 35, at 36-37.

> Greater progress may be attainable in GATT then in WIPO for two reasons. First, GATT has a more fluid mechanism for adopting new measures; the members of GATT have not formed voting blocs, largely because of their

Through this strategic maneuver of shifting from foundering WIPO to accommodating GATT, intellectual property somehow fundamentally acquired trade-related aspects.[42] Furthermore, these newly discovered trade-related aspects were of such importance that they could not be left to the public policy of individual countries but had to be imposed as international minimum standards. Indeed, certain of these trade-related aspects directed to patents were deemed of such paramount importance that they seemed to have acquired natural rights aspects.[43]

This Article first seeks to establish the premise that the patent portion of TRIPS implements, in significant provisions, a natural property rights theory of patents. Next, in an attempt to determine if any or all of these theories justify such provisions independent of natural rights, the author will analyze these relevant provisions according to various economic theories of patents. Then, an attempt will be made to determine the economic impact effected by the transformation of patents from domestic privileges to universal entitlements as natural rights. Finally, some strategies will be suggested to deal with that impact, particularly with respect to developing countries and least developed countries (LDCs).

II. NATURAL RIGHTS ASPECTS OF PATENT TRIPS (NRAPTS)

In contradistinction to being based upon positive law—constitutional or statutory—natural rights, being an entitlement of personhood or rationally following from higher

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> varying economic interests in the many aspects of trade subject to GATT negotiation. Most GATT non-tariff barrier obligations are embodied in "codes" to which adherence is optional. . . . Second, GATT dispute settlement procedures, while viewed as needing considerable improvement, are generally considered better than those in WIPO. . . .

Id. (footnote omitted).

42. While always having relevance to international trade, intellectual property was now seen as transcending the territorial jurisdiction of countries as a necessary aspect of trade relations among countries.

43. Such natural right aspects of patent TRIPS will be identified and analyzed *infra* text accompanying notes 82-106. Both the instrumentalist and natural right theories are based on Western philosophy. It may be instructive to compare Eastern philosophy concerning intellectual creations. See, in particular, Professor Alford's works: WILLIAM P. ALFORD, TO STEAL A BOOK IS AN ELEGANT OFFENCE (1995), and William P. Alford, *How Theory Does—and Does Not—Matter: American Approaches to Intellectual Property in East Asia*, 13 UCLA PAC. BASIN L.J. 8 (1994).

principles, devolve from a higher source.[44] In his famous book, *The Rights of Man*, Thomas Paine stated:

> Natural rights are those which always appertain to [human beings] in right of [their] existence. Of this kind are all the intellectual rights, rights of the mind, and also all those rights of acting as individual[s] of [their] own comfort and happiness, which are not injurious to the rights of others.[45]

Pervading any discussion of the nature or philosophy of property is the tension between property as an entitlement, a natural right, and property as a privilege or a creation of positive law serving instrumentalist goals.[46] The tension is heightened when natural rights are extended beyond tangible property to intangibles, including ideas, inventions, or expression.[47]

Generally two lines of reasoning have been offered as natural-rights justifications for patents. One is the "first occupancy" thesis: The person who discovers or creates an invention should be entitled morally to its exclusive use.[48] This appears to be the approach of the "rights of man" implemented in the French Patent Act of 1791.[49] The other thesis is a "labor" justification for natural rights treatment. It is based on the principle that the person who expends labor in creating intellectual property—an invention—should be morally entitled to the fruits of that labor.[50] This is a Lockean approach based upon the premise that labor is unpleasant, and those who engage in it deserve, in justice, to be rewarded.[51] There is, however, an instrumentalist aspect to this

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44. *See* ALAN RYAN, PROPERTY 61 (1987) ("The traditional theory of natural rights (insofar as it was one entity) characteristically derived individual rights from the law of God, or Nature or Reason.").

45. PAINE, *supra* note 19, at 43.

46. *See* RYAN, *supra* note 44, at 53. Professor Robinson consistently refers to the "patent privilege." *See* 1 ROBINSON, *supra* note 10, §§ 11-44.

47. Intellectual creations are different from tangible property in that they are inexhaustible and, in this sense are "free goods." In addition, they are "public goods," where upon disclosure they are subject to use and replication unless otherwise protected. *See* GLOBAL DIMENSIONS, *supra* note 8, at 24-28 (discussing the "public good" nature of information). *See also* Steven Cherensky, Comment, *A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property, and Personhood*, 81 CAL. L. REV. 595, 627-28, n.147 (1993) (discussing various property theories of patents in the context of employment agreements).

48. LAWRENCE C. BECKER, PROPERTY RIGHTS PHILOSOPHIC FOUNDATIONS 24-30 (1977).

49. *See Lois & Actes*, *supra* note 21.

50. BECKER, *supra* note 48, at 32-56.

51. JOHN LOCKE, THE SECOND TREATISE OF GOVERNMENT 16-30 (Thomas P. Peardon ed., 1952). The other labor thesis of Locke is that, as one has property rights in one's body, a right would also extend to the product of that body's labor.

theory, in that society should want to provide rewards to induce individuals to engage in distasteful but socially beneficial labor.[52]

Either of these theories seems to justify a "natural right" in inventors to their own inventions.[53] This scope of natural right in an invention is of a nonexclusive nature, and thus may be considered a "weak form" of natural right.[54] Inventors would be entitled to maintain their inventions in secrecy or to exploit their inventions publicly, albeit in a nonexclusive manner, provided there is no preclusion by positive law.[55] Even presuming the patent system should be abolished, this weak form of natural right would still persist.[56]

Extending the first occupancy or labor theories or a combination of them to grant to inventors exclusivity in their inventions, as a natural right, appears to require further justification. Exclusivity for inventions is obtained only by means of a positive law enactment creating a patent system, and then only by satisfying the formal and substantive conditions mandated by the system for the grant of a patent.[57] The argument can be made that a patent statute merely codifies the

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Id. *See* John Christman, *Can Ownership Be Justified by Natural Rights*, 15 PHIL. & PUB. AFF. 156, 159-64 (1986) (discussing Locke's labor theories).

52. At least to the extent that society is benefited by the labor as compared to being damaged (*e.g.*, by pollution or over-exploitation).

53. As stated by Professor Robinson: "In order, therefore, to retain exclusive ownership of [the] idea, [the inventor] must withhold its material embodiment from observation; and as long as [the inventor] can do this, the invention is as truly his [or hers] by natural right as if it never had been thus externally expressed." ROBINSON, *supra* note 10, at 38 (footnote omitted).

54. This usage as non-exclusivity being the "weak form" and "exclusivity" being the "strong form" is to be distinguished from Professor Christman's usage. He considered the "strong sense" of natural right to be that which persons would possess in a state of nature and the "weak sense" to be that not imposed by humanity. *See* Christman, *supra* note 51, at 157-58.

55. A primary form of exclusion would be the grant of a patent on the same invention to another. Other types of supervening positive law provisions would include those for safety, environmental protection, etc. Nevertheless, inventors might even be able to enjoy the best of both worlds by publicly exploiting inventions that are not self-disclosing of any trade secrets and that would require extensive reverse engineering to discover.

56. It may be argued that this weak form of natural right protection of invention would in itself be adequate to create an adequate number of inventions. Inventions would still, of course, be made whether or not patents are available. Competition in the marketplace may provide an adequate incentive for providing a sufficient number of inventions. *See infra* text accompanying notes 108-22 (discussing the patent-induced theory).

57. Patent protection may be contrasted with copyrights where protection in the United States and most countries of the world subsists by fixing an original work in a tangible medium of expression. *See* 17 U.S.C. § 102(a) (1994). Moreover, as mandated by the Berne Convention, *supra* note 33, art. 5(2), no formalities may be required for such protection.

natural right of inventors in their inventions and, hence, recognizes that right in its "strong form," entailing exclusivity.[58] The argument then would run: as exclusivity is the essential attribute of property, treating inventions as property is the necessary natural right entitlement justified by bringing the invention to fruition.[59]

If, then, a patent system is based on natural rights theory, what should rationally follow as characteristics of such a system? A fundamental characteristic would appear to be universality, protecting all forms of inventions everywhere. Thus the system should protect all forms of inventions as broadly as possible within the full spectrum of ideas—from general to specific implementations.[60] In theory, the subject matter of protection should be as expansive as possible so as not to exclude any inventive creation of the mind.

Universality would also require that there should be no limitation as to the duration of exclusivity.[61] If there is a natural property right to a patent, there would seem to be no justification

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58. Such could be said of the French Patent Act of 1791. *See Lois & Actes*, *supra* note 21. *See also* YVES PLASSERAUD & FRANCOIS SAVIGNON, L'ETAT ET L'INVENTION: HISTOIRE DES BREVETS 46-48 (1986).

The Supreme Court early identified the difference between the "weak" and the "strong" versions of the right: "It is the fact that the patentee has invented or discovered something useful and thus has the common-law right to make, use, and vend it . . . which induces the government to clothe [the patentee] with power to exclude everyone else from making, using, or vending it." Crown Die & Tool Co. v. NYE Tool & Mach. Works, 261 U.S. 24, 36 (1923). This recognition, of course, does not ordain that the grant of a patent "naturally" follows from the "common law" right.

59. Compare the economic argument that so treating inventions results in efficiency, especially with respect to transferability and transaction costs. *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 3.1 (4th ed. 1992) [hereinafter POSNER, ECONOMIC ANALYSIS] ("The creation of exclusive rights is a necessary rather than a sufficient condition for the efficient use of resources: The rights must be transferable.").

60. Arthur Kuflik, *Moral Foundations of Intellectual Property Rights*, *in* OWNING SCIENTIFIC AND TECHNICAL INFORMATION 219, 225 (Vivian Weil & John W. Snapper eds., 1989) ("What is needed is a coherent account of why, even though people have such a right, it applies only to certain products of their mental activity—specific inventions, particular works of authorship—rather than to all such mental products.").

61. See PENROSE, *supra* note 7, at 24 (footnote omitted) ("[I]f the patent grant is justified on grounds of natural property, there is no more logical or moral justification for limiting in time than in space.").

for making it time limited except on instrumentalist grounds.[62] Tangible property does not expire, although it may be expended.[63]

Another aspect of the universal nature of the right is that it should not be territorially limited because it does not arise from the positive law of a given sovereign but rather from a higher order.[64] Moreover, the arbitrary happenstance of where the invention was created, the nationality of the inventor, or the countries where patent protection is available should not affect the recognition of the natural right.[65]

Finally, if the patent right is an entitlement, then the reward granted should be commensurate with the invention's contribution.[66] Exclusivity, as the principal incident of property, is expected to achieve this result.[67]

The failure of actual patent systems to satisfy these idealized characteristics of a natural-rights-based system has been the principle criticism of this theory. Actual patent systems are not universal. They are limited by territory, subject matter, and duration, among others.[68] Finally, there seems to be little correlation between the contribution of an inventor and the reward to the patent owner.[69]

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62. *See infra* note 106 (citing studies on the economic value of the patent term).

63. *See, e.g.*, Roscoe Pound, *The Law of Property and Recent Juristic Thought*, 25 A.B.A. J. 993, 997 (1939):

> According to the civilians, property involves six rights: a *jus possidendi* or right of possessing, a right in the strict sense; a *jus prohibendi* or right of excluding others, also a right in the strict sense; a *jus disponendi* or right of disposition, what we should now call a legal power; a *jus utendi* or right of using, what we should now call a liberty; a *jus fruendi* or right of enjoying the fruits and profits; and a *jus abutendi* or right of destroying or injuring if one likes—the two last also what today we should call liberties.

Article 1, § 8, cl. 8 of the U.S. Constitution, of course, imposes the requirement that copyrights and patents be time limited.

64. *See* RYAN, *supra* note 44.

65. A country could grant patents only to native-born citizens with respect only to inventions made within the country and exclude a wide variety of technology from protection. *See infra* note 89 (citing the exclusions of various categories of inventions).

66. *See* Kuflik, *supra* note 60, at 231-32.

67. There are, of course, other inducements that may provide an adequate number of inventions at a lower cost to society (*e.g.*, prizes, awards, subsidies). *But see infra* note 69.

68. In addition to novelty and utility (industrial application) requirements, inventions are subjected to a quality standard expressed in terms of nonobviousness or involving an inventive step. *See infra* note 89 (quoting the patent TRIPS art. 27(1) requirements).

69. *See* PENROSE, *supra* note 7, at 30-31 ("One man may spend his life developing a great idea for which society is not ready; another may perfect a bright idea in an evening for a clever gadget which society is willing to buy in large

Aside from these criticisms is the difficulty of justifying a natural rights theory when there is an independent creation of the same invention.[70] If a patent right is a natural right, how can it be appropriated exclusively by the first applicant or the first inventor to file, thus depriving other independent inventors of their natural rights?[71] In addition, no invention is truly independent. All rely upon the past intellectual contributions forming the whole body of prior art. The concept of "standing on the shoulders of giants,"[72] or even of "ordinary mechanics,"[73] supplies a justification for a natural right to copy, at least in the "weak form" (*i.e.*, unless proscribed by positive law).[74]

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quantities and pay millions of dollars for."). In a generalized property context, see RYAN, PROPERTY & POLITICAL THEORY, *supra* note 7, at 91 ("Although utilitarianism is inhospitable to the concept of desert, the fact that utilitarian accounts of property rights so often invoke arguments about the incentive to labour makes it embarrassingly hard to overlook the way in which those who work hardest generally receive least."). *Cf.* GLOBAL DIMENSIONS, *supra* note 8, at 32 ("[T]he avoidance of administrative arbitrariness in awarding prizes or granting subsidies for invention has been recognized as an advantage of the patent system by economists since Adam Smith.").

70. Kuflik, *supra* note 60, at 226.

71. While it may be argued that awarding the patent to the first inventor is somewhat less arbitrary than awarding it to the one who wins the race to the patent office, it still does not resolve the contradiction of only one inventor's winning the lottery of the natural rights.

72. *See* ROBERT K. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT (1967) (considering the history of the phrase, often attributed to Isaac Newton); *see also* Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29 (1991).

73. In the context of weeding out inventions worthy of patent protection from those unworthy, the U.S. Supreme Court stated in *Graham v. John Deere Co.*, 383 U.S. 1, 11 (1965) (referring to *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248 (1850)): "*Hotchkiss* by positing the condition that a patentable invention evidence more ingenuity and skill than that possessed by an ordinary mechanic acquainted with the business, merely distinguished between new and useful innovations that were capable of sustaining a patent and those that were not."

74. Professor Robinson considers there to be a balance between natural rights and correlative natural duties:

> The natural right of the public to appropriate all new ideas that may be voluntarily disclosed is no less evident than that of the inventor to conceal them. It is a law of nature that [people] should profit by the discoveries and inventions of each other. This is the law which binds society together, and in obedience to which lies all the possibility of moral, intellectual, and material advancement. . . . To benefit by the discoveries of [others] is thus not only a natural right, it is also the natural duty which every [person] owes to [the self] and to society; and the mutual, universal progress thence resulting is the fulfillment of the earthly destiny of the human race.

ROBINSON, *supra* note 10, at 39 (footnotes omitted).

Whatever may be the merits or failings of the philosophical underpinnings of a natural rights theory of intellectual property and of patents in particular, this theory has had great rhetorical power in convincing the world community to sacrifice country-by-country traditional instrumentalist control over intellectual property to a more universal world standard as dictated by TRIPS. While never quite articulated as such, natural rights theory is submitted to have played a major rhetorical role in the strategy of industry groups dominated by multinational corporations (MNCs) to convince their governments in developed countries to demand "adequate" protection of intellectual property in the GATT negotiating process.[75]

A basic rhetorical argument, based upon a natural law premise, is that "theft," and "pirating" and "infringement" occur any time an invention patented anywhere in the world is copied anywhere else in the world, including in countries where that invention was not patented or even not patentable because of that country's positive law.[76] This line of argument illustrates that inventions should be considered as being universal and not territorially limited. Nonetheless, it is, of course, perfectly legal to replicate an invention that is in the public domain in a particular country.[77] Moreover, such copying presumably should be

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75. *See* Paul C. B. Liu, *U.S. Industry's Influence on Intellectual Property Negotiations and Special 301 Actions*, 13 UCLA PAC. BASIN L.J. 87 (1994).

76. *See supra* note 36. Even if a patent fails to claim a particular invention, this invention is dedicated to the public and is free for all to copy. If patent protection is assuaged in lieu of secrecy or there is a failure to file for whatever reason, with the loss of secrecy, this invention also goes into the public domain and may be freely copied. The use of this rhetorical argument may be seen by SmithKline Beecham's complaint against the generic copying of "Tagamet" in various countries that did not protect pharmaceuticals. SmithKline alleged a loss of $50 million because of such failure to protect in developing countries. *See* OFFICE OF TECHNOLOGY ASSESSMENT, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS AND INFORMATION 229-30 (1986). *See also*, Allen S. Gutterman, *The North-South Debate Regarding the Protection of Intellectual Property Rights*, 28 WAKE FOREST L. REV. 89, 136 (1993) (discussing Thailand's use of over 26 generic brands competing at prices as low as $0.35 per daily dose, as opposed to $1.68 daily for SmithKline's "Tagamet").

77. A classic example would be *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518 (1972), in which the Court held that it was not infringement in the United States to package parts of a shrimp-deveining machine patented in the United States with instructions for assembling the machine and shipping the kit to Brazil, where it could be assembled within one hour. *Id.* at 532. There was no infringement in Brazil because there was no Brazilian counterpart to the U.S. patent. Thus, the Brazilian purchaser was free to make and use the machine. Congress has closed this loophole so that the kit assembler in the United States would now be an infringer of the U.S. patent. *See* 35 U.S.C. § 271(f) (1994). Nonetheless, there still would be no infringement in Brazil by the user of the invention unless a corresponding Brazilian patent existed. *See also supra* 76

encouraged because of the economic efficiencies associated with free riding of this sort.[78] Certainly, such copying is neither theft nor piracy nor even infringement in the legal sense. It is only through the rhetorical construct of natural property rights that inventions are to be protected universally and that the "immorality" of copying inventions becomes manifest.

Copying an invention, wherever created and patented, becomes immoral because it is an incident of a natural property rights entitlement of the inventor (patent owner). All countries of the world must recognize this entitlement by means of its positive law, even though free copying might benefit particular countries. By accepting the natural rights premise, the basic philosophical tension between patents as a privilege or as an entitlement appears to be resolved in favor of the latter under patent TRIPS.[79]

Even though the rhetoric may be clear, the jurisprudential basis for TRIPS is not. For example, the preamble states:

> Desiring to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade; . . .
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> . . . .
>
> *Recognizing* the underlying public policy objectives of national systems for the protection of intellectual property, including development and technological objectives; . . .[80]

While perhaps leaving something to be desired, even for international bureaucratic drafting, the message of the introductory "*desiring*" clause, that inadequate protection of

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(discussing the sale of "Tagamet" in countries not granting patent protection on pharmaceuticals).

78. Bonito Boats, Inc. v. Thunder Crafts Boats, Inc., 489 U.S. 141, 146 (1989), is instructive on this point: "From their inception, the federal patent laws have embodied a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy." In countering the argument that the Florida statute only prohibited duplication of boat hulls by means of the "direct molding process," the Court stated:

> It is difficult to conceive of a more effective method of creating substantial property rights in an intellectual creation than to eliminate the most efficient method for its exploitation. *Sears* and *Compco* protect more than the right of the public to contemplate the abstract beauty of an otherwise unprotected intellectual creation—they assure its efficient reduction to practice and sale in the market-place.

Id. at 164.

79. *See supra* note 6 (defining "patent TRIPS").

80. TRIPS Agreement, *supra* note 6, pmbl. (emphasis added).

intellectual property rights may somehow distort and impede international trade, appears to justify a universalist natural rights theory if the nexus is accepted. On the other hand, the "*recognizing*" clause acknowledges the instrumental goals of national intellectual property systems as including "development and technological objectives."

The objectives stated in Article 12 again imply at least a qualified instrumentalist view, but on a worldwide basis as opposed to the national basis in the preamble:

> The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.[81]

The qualification, seemingly a natural rights one, is that users of "technological knowledge" must also recognize their obligation to protect it.

Two major provisions of patent TRIPS are submitted to represent primarily a natural rights philosophy, and are singled out for detailed analysis.[82] These collectively will be called "natural rights aspects of patent TRIPS" (NRAPTS).[83] These are Article 27 (Patentable Subject Matter) and Article 33 (Term of Protection).

Article 27 provides: "Paragraph 1. Subject to the provisions of paragraph 2 and 3 below, patents shall be available for any inventions whether products or processes, in all fields of technology . . . ."[84] Paragraph 2 generally permits the exclusion

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81. *Id.* art. 12.

82. Other provisions of TRIPS may also be seen as having natural rights aspects. However, within the thesis of this Article, only two of the principal ones will be analyzed in detail. Other natural rights aspects of TRIPS may be seen in the subject matter required to be protected (*e.g.*, sound recordings (art. 14) (not mandatory under the Berne Convention), geographical indications (arts 22-23), industrial designs (arts. 25-26), semiconductor chip layout (arts. 35-38), trade secrets (art. 39)). TRIPS, *supra* note 6.

83. The qualification of natural rights by aspect is believed appropriate because of the ambiguous jurisprudential bases for TRIPS.

84. Subject to the provisions of paragraphs 2 and 3 below, (adopted by the National Assembly during the French revolution on August 26, 1789, and reaffirmed by the Constitution of 1958) patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

from patentable subject matter inventions "necessary to protect *ordre public* or morality."[85] Paragraph 3 permits the exclusion of "diagnostic therapeutic and surgical methods for the treatment of humans or animals" and "plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes."[86] However, members are required to protect "patent varieties either by patents or by an effective sui generis system or by any combination thereof."[87]

Aside from these limitations and the requirement that the invention fall within a field of "technology," members are obligated to provide patent protection to "any inventions."[88] This statutory subject matter definition certainly goes well beyond that of many nations which exclude, *inter alia*, pharmaceuticals, food, and agricultural chemical products. These exclusions presumably are based upon instrumental public policy.[89] Indeed, the scope of

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Id. art. 27(1).

85. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law.

Id. art. 27(2).

86. Members may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for treatment of humans or animals;

(b) plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this sub-paragraph shall be reviewed four years after the entry into force of the Agreement Establishing the MTO.

Id. art. 27(3).

87. *Id.*

88. *Id.*

89. *See* World Intellectual Property Organization, Existence Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, WO/INF/29 Sept., 1988 GATT Document MTN. GNG/NG11/W/24/Rev. 1 [hereinafter WIPO Study]. This study finds the following among the principal exclusions: 49 countries exclude pharmaceutical products, 10 countries exclude pharmaceutical processes, 45 countries exclude animal varieties, 44 countries exclude plant varieties, 35 exclude food product, 32 countries exclude computer programs, and 22 countries exclude chemical products. *See also* NEGOTIATING HISTORY, *supra* note 34, at 2273 ("Whereas the developed countries' texts all supported negotiation of a comprehensive agreement on [protection of pharmaceuticals], the developing countries viewed

subject matter of Article 27 may be broader than the "process, machine, manufacture or composition of matter," which are categories of Section 101 of the U.S. Patent Statute.[90]

The broad mandatory subject matter definition of Article 27 more clearly implements a natural rights theory than an instrumentalist view. Historically, it is difficult to justify an instrumentalist view of Article 27, because most countries have had specific exclusions from patentability based upon perceived public policy. These countries, of course, could have been mistaken as to the merits of their public policy, which has now been clarified by the international community. However, a more plausible explanation might be that Article 27 implements natural rights theory to the effect that all inventions, including certain categories of inventions that have been traditionally excluded from protection by many countries, are now of such importance to international trade that they must be protected universally. Their value transcends perceived national instrumentalist self-interest, which now must yield to the natural rights entitlement.[91]

Patent TRIPS may even be seen as creating "supernatural" property rights in two particular classes of inventions, namely, pharmaceutical and agricultural chemical products. In Article 70, entitled "Protection of Existing Subject Matter," paragraph 8 requires that all members "make available as a date of entry into the force of the Agreement Establishing the WTO patent protection for pharmaceutical and agricultural chemical products

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intellectual property not as a property right, but rather as an instrument of public policy.").

90. U.S. courts have found it difficult to fit computer programs into the process, machine, or manufacture categories. *See, e.g.*, Gottschalk v. Benson, 409 U.S. 63 (1972); Parker v. Flook, 437 U.S. 584 (1978); Diamond v. Diehr, 450 U.S. 175 (1981). Relevant decisions of the U.S. federal circuit courts include: *In re* Alappat, 33 F.3d 1526 (Fed. Cir. 1994) (machine), *In re* Schrader, 22 F.3d 290 (Fed. Cir. 1994) (process); *In re* Lowry, 32 F.3d 1579 (Fed. Cir. 1994) (composition of matter).

91. Nonetheless, there is jurisprudential ambiguity even within Article 27(1), which, after defining statutory subject matter, defines the substantive standard for protection mandated for all members: An invention to be patented must be "new, involve an inventive step and [be] capable of industrial application. . . ." TRIPS, *supra* note 6, art. 27(1). Footnotes explain that "inventive step" may be interpreted as being synonymous with "non-obvious," and "capable of industrial application" with "useful." *Id.* The non-obvious standard indicates that some new and useful inventions are more meritorious than others. The usual rationale for this is an instrumentalist one, as articulated in *Graham v. John Deere Co.*, 383 U.S. 1, 11 (1966), that the non-obvious standard was devised to solve the "inherent problem [of] develop[ing] some means of weeding out those inventions which would not be disclosed or devised but for the inducement of a patent." An entitlement view has no need to weed out inventions induced by a patent system, because protection is inherent as a natural right independent of any patent system inducement.

commensurate with its obligations under Article 27."[92] Those members, including developing countries and LDCs,[93] that do not must: (1) provide a procedure for accepting applications with respect to such inventions, (2) examine such inventions according to the substantive standards of Article 27, and, moreover, (3) protect such inventions according to the duration set out in Article 33.[94] With respect to all other categories of subject matter, developing countries and LDCs may delay the operation of Article 27 for various transitional periods.[95]

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92. Where a Member does not make available as of the date of entry into force of the Agreement Establishing the MTO patent protection for pharmaceutical and agricultural chemical products commensurate with its obligations under Article 27, that Member shall:

> (i) notwithstanding the provisions of Part VI above, provide as from the date of entry into force of the Agreement Establishing the MTO a means by which applications for patents for such inventions can be filed;
>
> (ii) apply to these applications, as of the date of application of this Agreement, the criteria for patentability as laid down in this Agreement as if those criteria were being applied on the date of filing in that Member or, where priority is available and claimed, the priority date of the application;
>
> (iii) provide patent protection in accordance with this Agreement as from the grant of the patent and for the remainder of the patent term, counted from the filing date in accordance with Article 33 of this Agreement, for those of these applications that meet the criteria for protection referred to in sub-paragraph (ii) above.

TRIPS, *supra* note 6, art. 70(8).

93. *See* Marco C.E.J. Bronckers, *The Impact of TRIPS: Intellectual Property Protection in Developing Countries*, 31 COMMON MKT. L. REV. 1245, 1255 (1994) (listing 47 countries as LDCs).

94. *See supra* note 84 (quoting substantive requirements); *see infra* note 100 (quoting duration).

95. As summarized by Bronckers, *supra* note 93, at 1252: "The least developed countries are not obliged to apply the provisions of the TRIPS agreement in the first *eleven years* following the entry into force of the WTO."

> In the first *five years* following the entry into force of the WTO [other developing] countries are not obliged to apply the provisions of the TRIPS agreement. This is to be compared with the one year transitional period for developed countries. . . . As for the pharmaceutical and agricultural chemical products, however, an exceptional regime has been established as described above.

Id. at 1257-58. *See also* J.H. Reichman, *Universal Minimum Standards of Intellectual Property Protection Under the TRIPS Component of the WTO Agreement*, 29 INT'L LAW. 345, 353 [hereinafter Reichman, *Universal Minimum Standards*] (discussing transitional provisions of TRIPS).

In addition, under Article 70, paragraph 9, all members must provide so-called "pipeline" protection[96] for pharmaceutical and agricultural chemical product inventions in the form of "exclusive marketing rights."[97] Such rights are to extend for five years starting from the date of market approval in that country or until a patent is granted or rejected, with the proviso that a patent has been granted in another member and that market approval has been obtained.[98]

The "existing rights" provisions of Article 70 thus make it clear that some inventions are more equal than others. Pharmaceutical and agricultural chemical product inventions presumably are of such importance that immediate protection must be implemented. Indeed, protection must be provided to such inventions even when they were created prior to their protectability under the positive law of certain members.[99] Evidently, the GATT community concludes that there are some preexisting supernatural rights in pharmaceutical and agricultural chemical product inventions that all members are bound to protect, even though this was unrecognized in their positive law.

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96. "The protection of pharmaceuticals subject to a patent, but not yet developed or marketed is known as 'pipeline' protection. . . . The United States . . . proposed that the TRIPS agreement provide 'pipeline' protection for patented drugs which have not been marketed in foreign countries." NEGOTIATING HISTORY, *supra* note 34, at 2286, 2298. *See also* Reichman, *Universal Minimum Standards*, *supra* note 95, at 353 (footnote omitted) ("Nevertheless, a pipeline provision, clarified at the last minute, safeguards existing pharmaceutical and agrochemical patents, which, if otherwise eligible, must obtain at least five years of exclusive marketing rights even in those developing countries that did not previously grant patents in these fields.").

97. Reichman, *Universal Minimum Standards*, *supra* note 95, at 353.

98. Where a product is the subject of a patent application in a Member in accordance with paragraph 8(i) above, exclusive marketing rights shall be granted, notwithstanding the provisions of Part VI above, for a period of five years after obtaining market approval in that Member or until a product patent is granted or rejected in that Member, whichever period is shorter, provided that, subsequent to the entry into force of the Agreement Establishing the MTO, a patent application has been filed and a patent granted for that product in another Member and marketing approval obtained in such other Member.

TRIPS, *supra* note 6, art. 70(9).

99. For example, an application for a pharmaceutical invention filed on a member protecting such inventions prior to entering into force of the Agreement will be entitled to protection under Art. 70(8), in a member that did not provide such protection at the time of the original filing, and must even give that application a priority date. It is not apparent when the priority date starts to run—from the date of original filing, from its date of entry into the Agreement or otherwise.

The second provision in patent TRIPS that is submitted to have a natural rights aspect is Article 33, mandating a uniform term for all patents of twenty years running from the filing date.[100] Prior to the enactment of this provision, many nations, including the United States, had a different term of protection.[101] Many countries had shorter terms with respect to all or with respect to particular classes of inventions.[102] Thus, by virtue of this provision, individual members are excluded from establishing the term of protection on an instrumentalist basis according to the perceived value of a particular class of inventions. All classes of inventions are to be treated the same for the same period of time. Hence, by acquiring foreign patents, owners will be assured of a twenty-year term from the filing date in that country, and will be able to continue their monopoly position in foreign countries even after expiration of their patents in the originating country.[103]

This again would appear to be based on the natural rights theory that all inventions require a minimum duration as an entitlement, and that the term should be uniform irrespective of the perceived value of that class of invention to a given nation. Moreover, by extending the patent term, the value of the entitlement is accordingly increased.[104] This extension will

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100. "The term of protection available shall not end before the expiration of a period of twenty years counted from the filing date." TRIPS, *supra* note 6, art. 33 (footnote omitted).

101. The 17-year term from grant for U.S. patents began under the Patent Act of 1861. This term superseded that of the Patent Act of 1836, which provided for a 14-year term from grant with the possibility of a 7-year renewal term. The first Patent Act of 1790 and that of 1793 provided for a 14-year term from grant. *See* 1 PETER D. ROSENBERG, PATENT LAW FUNDAMENTALS § 1.07 (2d ed. 1995).

102. For example, 25 countries plus the African Intellectual Property Organization (OAPI) countries have shorter terms from the date of filing; 15 start protection from the date of grant. *See* WIPO Study, *supra* note 89. *See also* 2 J.W. BAXTER ET AL., WORLD PATENT LAW AND PRACTICE §§ 6.00-6.01 (1992) (listing patent terms).

103. Patents in Commonwealth countries expired at the same date their United Kingdom counterparts expired. WIPO Study, *supra* note 89. Article 4*bis* of the Paris Convention, *supra* note 26, requires: "(5) Patents obtained with the benefit of priority shall, in the various countries of the Union, have a duration equal to that which they would have, had they been applied for or granted without the benefit of priority." This requirement has now been implemented in the United States under 35 U.S.C. § 154(a)(3) (1995).

104. The optimal term for a patent has been studied. *See, e.g.*, Machlup, *supra* note 7, at 66-73 (shortening or lengthening the duration of patents); WILLIAM D. NORDHAUS, INVENTION, GROWTH, AND WELFARE 76-86 (1969) (the optional life of a patent); F.M. SCHERER, INNOVATION AND GROWTH, 130-41 (1984) (theory of optimal patent life); J.E.S. PARKER, THE ECONOMICS OF INNOVATION 303-06 (2d ed. 1978); C. Michael White, *Why a Seventeen Year Patent*, 38 J. PAT. OFF. SOC'Y 839 (1956). *See* GLOBAL DIMENSIONS, *supra* note 8, at 36 (summarizing studies).

provide a special bounty to owners of certain classes of inventions, particularly pharmaceuticals.[105]

In sum, the TRIPS provisions on statutory subject matter (Article 27) and mandatory term of patent protection (Article 33) are submitted to have significant natural right aspects. They provide universal subject matter protection for substantially all inventions and provide a uniform term of protection, irrespective of subject matter. This protection must be accorded by a member of GATT, regardless of its impact on social welfare in that country. According to a natural rights thesis, these rights are so important that individual member welfare should not stand in the way of their being protected as an entitlement of the creators. This invokes a counter-instrumentalist policy that members, regardless of their state of industrialization, should sacrifice their national interests in favor of the posited higher order of international trade.[106]

III. NRAPTS VERSUS ECONOMIC THEORIES

While it may take a true believer to embrace a natural property rights justification for the significant benefits offered under patent TRIPS to patent owners in developed countries, nonetheless there may be other justifications, in particular economic ones, that would lead the world community, including developing countries and LDCs, to submit to such a regime under GATT. In this Section, the natural rights aspects of patent TRIPS, identified and discussed *supra*, will be evaluated in terms of economic theories that have been or may be advanced in justification of patent TRIPS.[107]

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105. Harvey Bale, executive vice-president of the Pharmaceutical Manufacturers Association, stated with regard to the effects of the absence of pipeline protection in the TRIPS Agreement: "If the Uruguay Round pact takes effect in 1993 and developing countries do not have to abide by its provisions until 2003, then drugs under development as late as 2013 could be pirated. . . . We're talking about $100 billion in lost sales." *See infra* note 135 (indicating importance of patents to the pharmaceutical industry based on 30-year review of studies).

106. *Cf.* TRIPS, *supra* note 6, art. 7, which uses instrumentalist language "to the mutual advantage of producers and users of technological knowledge," but makes clear that there should be a "balance of rights and obligations," which TRIPS then proceeds to define.

107. The author has been critical of the claim that patent economic theories can predict the validity of patents in actual cases. A. Samuel Oddi, *Un-Unified Economic Theories of Patents—The Not-Quite-Holy Grail*, 71 NOTRE DAME L. REV. 267 (1996) [hereinafter Oddi, *Un-Unified Economic Theories*]. However, the author has concluded that such theories provide a valuable analytic technique for evaluating the efficiency of various provisions of patent law. *Id.* at 327. Several

A. *Patent-Induced Theory*

A basic premise of the patent-induced theory is that there would be a net benefit to society if patents were granted only to those inventions that were actually induced by the patent system.[108] Thus, there should be a causal connection between the creation of an invention and the patent system (*i.e.*, but for the patent system this invention would not have been created).[109]

There is little question that many inventions have been and would still be created without the incentive of a patent system.[110] These so-called non-patent-induced inventions would be created, in any event, as a consequence of competitive market pressures.

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economic models have been developed to study the effect of patent rights on North-South trade. *See* JUDITH C. CHIN & GENE M. GROSSMAN, INTELLECTUAL PROPERTY RIGHTS AND NORTH-SOUTH TRADE (National Bureau of Economic Research) Working Paper No. 2769, 1988) (finding the South benefiting from "pirating" and the North being harmed); ISHAC DIWAN & DANI RODRIK, PATENTS, APPROPRIATE TECHNOLOGY AND NORTH-SOUTH TRADE (The World Bank Working Paper No. 251, 1989) (implying that if the welfare of the South is preferred to that of the North, patent protection in the South need not be lower, but that increased protection in the South need not be beneficial to the North). Both studies include the caveat that it is not clear whether the South should increase or decrease intellectual property protection. *Compare* Richard T. Rapp and Richard P. Rozek, *Benefits and Costs of Intellectual Property Protection in Developing Countries*, J. WORLD TRADE, Oct. 1990, at 75 (concluding that benefits in the form of investment and technology transfer exceed costs in developing countries) *with* Edwin Mansfield, *Unauthorized Use of Intellectual Property: Effects on Investment, Technology Transfer, and Innovation*, *in* GLOBAL DIMENSIONS, *supra* note 8, at 140 (finding no statistically significant correlation between the perceived strength of a given country's intellectual property protection and direct investment by U.S. firms in the late 1980s and 1990s).

108. *See* F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (2d ed. 1980) [hereinafter SCHERER, INDUSTRIAL]; Douglas F. Greer, *The Case Against Patent Systems in Less-Developed Countries*, 8 J. INT'L L. & ECON. 223 (1973); Alfred E. Kahn, *The Role of Patents*, *in* COMPETITION, CARTELS AND THEIR REGULATION 308 (John P. Miller ed., 1962); A. Samuel Oddi, *Beyond Obviousness: Invention Protection in the Twenty-First Century*, 38 AM. U. L. REV. 1097, 1101-02, 1114-16 (1989) [hereinafter Oddi, *Beyond Obviousness*]; A. Samuel Oddi, *An Uneasier Case for Copyright Than for Patent Protection of Computer Programs*, 72 NEB. L. REV. 351 (1993) [hereinafter Oddi, *Uneasier Case*]; A. Samuel Oddi, *The International Patent System and Third World Development: Reality or Myth?* 1987 DUKE L.J. 831 (1987) [hereinafter Oddi, *International Patent System*].

109. "Induced" is used in a broad sense with the understanding that the patent system may induce inventions at various stages in the developmental process—from the conception stage through the improvement (commercialization) stage, as well as by providing an alternative to protection by secrecy. *See* Oddi, *Uneasier Case*, *supra* note 108, at 374-75.

110. Few would doubt the maternity of many inventions. *See* JOHN BARTLETT, FAMILIAR QUOTATIONS 134 (Emily M. Beck ed., 15th ed. 1980) (Anonymous: Latin—*mater artium necessitas*).

The market often provides an adequate incentive for their creation in the forms of the competitive advantages associated with headstart, market recognition, and learning curve advantage.[111]

There are, nonetheless, certain types of inventions that, in theory, depend significantly upon the existence of the inducement of the patent system. The most important type of patent-induced invention has been identified as a "revolutionary" invention by Professor Scherer. He defines these inventions as those producing revolutionary changes in consumption or production.[112] This type of invention generally has an indeterminable benefit-to-cost ratio, normally requires considerable developmental investment, and has a significant risk of failure.[113]

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111. *See* SCHERER, INDUSTRIAL, *supra* note 108, at 443-48. *See also* Oddi, *Beyond Obviousness*, *supra* note 108, at 1114-16. Perhaps a classic example of high benefit-to-cost inventions would be the plow covered by the 798 patent invalidated in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). This was supposedly an improvement patent over the plow covered by the 811 patent. In actuality, the 798 patent was a defensive patent never marketed by Graham, but used to exclude competitors. *See* Oddi, *Un-Unified Economic Theories*, *supra* note 107, at 314-16 (discussing the history of these patents). In the context of identifying nonobvious inventions, the court in *Graham* stated that: "The inherent problem was to develop some means of weeding out those inventions which would not be disclosed or devised but for the inducement of a patent." 383 U.S. at 11. Obvious inventions did not need the inducement; they would become available in any event.

In the context of providing patent-like protection, the U.S. Supreme Court in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1989) stated: "State law protection for techniques and designs whose disclosure has already been induced by market rewards may conflict with the very purpose of the patent laws by decreasing the range of ideas available as the building blocks of further innovation."

> 112. It is conceivable that without a patent system certain spectacular technical contributions—those effecting a genuine revolution in production or consumption patterns—might be lost or (more plausibly) seriously delayed because their support lends itself poorly to rational benefit/cost calculation. Such innovations may lie off the beaten paths of industrial technology, where no firm or group of companies has a natural advantage; and the innovator may be forced to develop completely new marketing channels and production facilities to exploit them. They may entail greater technological and market uncertainties, higher development costs, and longer inception-to-commercialization lags than the vast bulk of all industrial innovation.

SCHERER, INDUSTRIAL, *supra* note 108, at 448. Examples would include: the airplane, antibiotics, instant photography, lasers, sulfonamids, synthetic textiles, telegraph, telephone, television, tranquilizers, transistors, and xerography. *See* SHERMAN GEE, TECHNOLOGY TRANSFER, INNOVATION, AND INTERNATIONAL COMPETITIVENESS 161 (1981); UNITED STATES PATENT OFFICE, REVOLUTIONARY IDEAS, PATENTS & PROGRESS IN AMERICA (1976).

113. SCHERER, INDUSTRIAL *supra* note 108, at 448. Scherer identifies another category of inventions that are dependent on the patent system having a

On the other hand, many inventions commonly have a high benefit-to-cost ratio by virtue of being improvements in existing product lines of a given enterprise.[114] Because the product already has a market and a distribution system, there is a relatively high likelihood of success for any improvement. These types of high benefit-to-cost inventions are likely to be far less dependent on the patent system and may be identified as non-patent- or market-induced, their primary inducement being the market itself. Hence, granting a patent tends to be costly because the public would, in any event, have received them free of the patent monopoly.[115] According to the patent-induced theory, a patent system is justified if the ratio of patent-induced to non-patent-induced inventions is at least high enough to insure a net benefit to society.[116]

One may then ask the question: what impact will the imposition of universal statutory subject matter and duration requirement have on the ratio of patent-induced to non-patent-induced inventions on a worldwide basis? First, it is clear that there will be a significantly greater incentive offered to invention producers. The inducement to invent has been augmented by the number of additional countries who now protect previously unprotected subject matter for an extended term.

One must then address a series of follow-up questions. Is the incentive offered by the marginal addition of further countries necessary for the creation of particular inventions? Will this marginal increase in incentive result in, at least, a marginally equivalent additional investment in research and development for the creation of inventions that would not otherwise have come

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low benefit-to-cost ratio. These would include detail inventions in a crowded market where there would be little incentive to create them but for the possibility of patent protection, albeit narrow protection. Scherer concludes that society benefits little from their creation. *Id.*

114. *Id.* at 443-48.

115. *Id.*

116. [E]xcept when innovators' profits come largely from cannibalization of the profits that would otherwise be enjoyed by the producers of substitute products, it is likely that society as a whole (i.e., including both consumers and producers) gains from inventions and innovations *induced or hastened* by the grant of patent rights.

Id. at 443 (emphasis added); *see also* Greer, *supra* note 108, at 224 ("Nevertheless, it can be formally demonstrated that the economic benefits of such inventions (in the form of production cost savings or new product consumption utilities) always exceed those social costs to yield a net social benefit."); Kahn, *supra* note 108, at 311 ("So long as the innovation would not have been forthcoming without the patent, this social cost must always be less than the benefit; but of course the converse is equally true.").

into being? Will any additional inventions so created be of the type dependent upon the patent system, and, in particular, will more revolutionary inventions be created?

While it is difficult to measure, there seems to be little evidence that there was a dearth of inventions prior to the adoption of patent TRIPS.[117] The primary problem that TRIPS was intended to solve appears to be that inventions, once created, were being copied in countries that did not provide adequate intellectual property protection.[118] Indeed, with the incentives provided by the patent systems of the United States, the European Union, and Japan, it may be difficult to ascertain what additional incentives would be necessary in order to produce revolutionary inventions, let alone improvement inventions.[119]

While some increased investment in inventions may be anticipated with certain large market countries now providing patent protection previously unavailable,[120] it is difficult to conclude that the addition of any other countries on a marginal basis will provide a proportional increase in invention creation. To the contrary, providing protection in marginal countries is likely to reduce the net benefit in those countries whose patent systems had nothing to do with the inducement for creation of those inventions. Without protection for such non-patent-induced inventions, those countries, of course, could freely copy.

With respect to those countries that had no inducing power in the creation of the invention, one can hardly say that they are "free riders" because there was no causal connection between the created invention and their patent system. To the contrary, this may be seen as "free loading" by the patent owners who derive the primary economic benefit from the import monopoly in these

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117. The rhetorical argument is that more would be invested in research and development (R&D) if the investment could be protected. But even assuming increased investment, it does not logically follow that this investment was necessary to create an adequate number of inventions, especially societally beneficial ones.

118. *See supra* note 37.

119. By definition revolutionary inventions would have worldwide impact. Commercialization of these inventions will begin in developed countries and then trickle down to developing countries.

120. Obvious examples would be countries with large populations, such as: China (1.16 billion—1992), India (846 million—1991), Indonesia (188 million—1993), Brazil (146 million—1991), Pakistan (119 million—1992), Bangladesh (119 million—1993), and Nigeria (89 million—1991). *See* THE STATESMAN'S YEARBOOK (Brian Hunter ed., 131st ed. 1994-95). The problem with such markets, however, is the low GNP per capita: China ($370—1991), India ($330—1991), Indonesia ($620—1992), Bangladesh ($220—1991), Pakistan ($400—1991), Nigeria ($290—1991)—compared to a GNP per capita in the United States of $22,560 in 1991; however, note Brazil had a $2,680 GNP per capita in 1991. *Id.*

marginal countries.[121] The patent systems of such countries provide no needed incentive to invent, but protection is offered as a boon in order to remain a member in good standing of GATT. These arrangements force the marginal countries to pay for something that they otherwise would have received for free but for patent TRIPS, presuming they have the technological ability to replicate such inventions created in the developed world.[122]

In sum, it is difficult to conclude that the ratio of patent-induced to non-patent-induced inventions will increase under patent TRIPS. Moreover, it is also difficult to conclude that there will be an increase in invention creation proportional to the increase of market protection for a given subject matter for a longer term.

B. *Rent Dissipation Theory*

Society may be seen as benefiting from receiving an invention in excess of its development costs, and the inventor should be compensated by a "rent" in the form of a patent monopoly.[123] The amount of the rent would be the difference between what society is willing to pay for the invention and the development costs.[124] By evoking the rent by means of a patent monopoly, free riders are barred from copying and the incentive to invest in development is protected.[125] However, according to rent dissipation theory as posited by Professor Grady and Mr. Alexander, the incentive provided by the patent system may result

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121. This is clear in those cases where, even though patent protection was available, the owner of the invention failed to avail itself of that protection in a given country. It is even clearer when a particular country does not provide protection on certain subject matters and investment is made toward creating an invention in the unprotected subject matter category.

122. Without patent protection in these marginal countries, even without the technological ability to replicate, there would be no import monopoly and presumably the invention would be available at more competitive pricing.

123. *See* Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305 (1992); Kevin Rhodes, Comment, *The Federal Circuit's Patent Non-Obviousness Standards: Theoretical Perspectives on Recent Doctrinal Changes*, 85 NW. U. L. REV. 1051 (1991). Judge Posner defines "rent-seeking" as "the incentive to overproduce goods that promise a return greater than the cost of production (that is, an economic 'rent'), and to the resulting waste when rents are transformed, through competition to obtain them, into costs." RICHARD A. POSNER, LAW AND LITERATURE 342 (1988); POSNER, ECONOMIC ANALYSIS, *supra* note 59, at 37-38 (analyzing the costs of such behavior). *See generally*, TOWARD A THEORY OF THE RENT-SEEKING SOCIETY (James M. Buchanan et al. eds., 1980).

124. Grady & Alexander, *supra* note 123, at 308.

125. *Id.*

in rent dissipation, imposing societal costs.[126] They identify three forms of rent dissipation. The first form is at the conception stage, where multiple independent inventors may be investing in the development of the same invention.[127] The second form is at the improvement stage, where a basic invention may induce others to over-invest in improving that invention.[128] The third stage that may result in excess rent dissipation is the over-investment in maintaining the invention in secrecy.[129] The basic question thus faced under the rent dissipation theory is whether mandating universal subject matter and duration protection results in diminished or increased rent dissipation.

At the conception stage, an increase in rent dissipation can be anticipated primarily because of the greatly increased incentive to win the patent "lottery," compared to being limited to individual countries with varying degrees of protection. Hence, uniformity would add to the incentive for enterprises throughout the world (especially the developed world) to invest in the hopes of obtaining essentially a world patent monopoly.[130]

Increased rent dissipation may also be anticipated at the improvement stage. Again, this would be based on the premise that there would be a greater incentive to invest in improving inventions if worldwide protection could be obtained on the improvements. This may be a particularly strong incentive in an evolving world market.[131] Grady and Alexander maintain that rent dissipation may be minimized by precluding broad protection on fundamental inventions because they, by definition, cannot be improved upon. Therefore, it would be highly rent dissipating to provide the incentive to create such inventions.[132] On the contrary, detail inventions, which indicate they may be improved (*i.e.*, "signal" improvements), should be protected so that others would be discouraged from trying to improve such inventions and thereby dissipate resources.[133]

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126. *Id.* at 306-09. The rent dissipation theory as postulated by Grady and Alexander is critiqued in Donald L. Martin, *Reducing Anticipated Rewards from Innovation Through Patents: Or Less Is More*, 78 VA. L. REV. 351 (1992); and in Robert P. Merges, *Rent Control in the Patent District: Observations on the Grady-Alexander Thesis*, 78 VA. L. REV. 359, 376-77 (1992).

127. Grady & Alexander, *supra* note 123, at 306-07.

128. *Id.* at 308.

129. *Id.* at 308-09, 318.

130. For example, the countries that previously excluded such categories of pharmaceuticals and food products are now forced into the combined incentive pool.

131. This may be especially true where local conditions may lead to various improvements, for example, preference due to local customs, available materials, standardization, etc.

132. Grady & Alexander, *supra* note 123, at 321.

133. *Id.* at 320.

Of course, there is no indication that fundamental or basic inventions would be treated less favorably in the various countries (especially in developed countries) after TRIPS than would any other inventions.[134] Indeed, with respect to pharmaceutical inventions, which receive special status in TRIPS and tend to be of a broad fundamental nature, a great incentive will be offered to competing enterprises to invest in the creation of such inventions.[135]

Whether or not there will be excessive dissipation at the improvement stage will depend upon the scope of protection given to patents in each country. The broader the scope, the less incentive to make improvements on that patent. However, if narrow scope is provided, such as in Japan (compared with the United States), then it may be assumed that there will be an increased incentive to find improvements.[136] With universal subject matter protection for a common duration, certain countries may find it in their self-interest to provide a narrow scope of inventions in order to permit the local improvement of

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134. *See* Oddi, *Un-Unified Economic Theories*, *supra* note 107, at 290-95, 303-05 (illustrating cases where broad protection was provided).

135. In sharp contrast to the situation pertaining in most other industries and the electronics field in particular, the patent grant often confers significant benefit to innovators in the pharmaceutical field. My discussions with patent attorneys working for pharmaceutical firms brought out two likely reasons for this situation. First, unusually strong patents are obtainable in the chemical field, of which pharmaceuticals is a part. Second, it is often difficult to invent around a pharmaceutical patent.

Pharmaceutical patents can be unusually strong because one may patent an actual molecule found to have useful medical properties *and* its analogs. One need not make each analog claimed but can simply refer to lists of recognized functional equivalents for each component of the molecule at issue. . . .

Many pharmaceutical patents are difficult to invent around today because the mechanisms by which pharmaceuticals achieve their medical effects are often not well understood.

ERIC VON HIPPEL, THE SOURCES OF INNOVATION 53 (1988).

136. In Japan, once a patent application disclosing a basic invention is published as required by Japanese patent law, it is common practice for Japanese competitors immediately to begin to develop improvement inventions and file numerous patent applications circumscribing the basic invention with improvements. *See* GENERAL ACCOUNTING OFFICE, INTELLECTUAL PROPERTY RIGHTS, U.S. COMPANIES' PATENT EXPERIENCES IN JAPAN 49-50 GAO/GGD-93-126 (1993) (surveying experience of 360 U.S. firms with the Japanese patent system) [hereinafter GAO REPORT-JAPAN]. A major complaint of U.S. companies with Japanese patent practices is the narrow scope of protection granted to basic inventions. *Id.* at 3, 48-49.

fundamental inventions and, in addition, to protect those improvements.

In sum, it is far from apparent that rent dissipation will be less prevalent under TRIPS than under a country-by-country system. At least with respect to rent dissipation due to excessive investment in maintaining inventions in secrecy, some lessening of dissipation may be expected if Section 7 (Protection of Undisclosed Information) is fully implemented, requiring members to provide trade secret protection.[137] Nonetheless, this provision would apply only if there is a transfer of trade secrets into the country. With the expansion of protection under patent TRIPS, invention owners will be more likely to rely on patent protection than on trade secret protection, and any savings in rent dissipation is likely to be overridden by increased dissipation at the conception and improvement stages.[138]

C. *Race-to-Invent Theory*

The "race-to-invent" theory posits that "faster is better" with respect to the creation of inventions.[139] The rationale for this theory, developed by Professors Merges and Nelson, is that economic well-being increases with productivity, productivity increases with the number of inventions, and the number of inventions increases with research and development

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137. TRIPS, *supra* note 6, art. 39(2) provides:

> Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:
>
> — is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;
>
> — has commercial value because it is secret; and
>
> — has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

138. As stated in *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 490 (1974):

> Where patent law acts as a barrier, trade secret law functions relatively as a sieve. The possibility that an inventor who believes his [or her] invention meets the standards of patentability will sit back, rely on trade secret law, and after one year of use forfeit any right to patent protection, 35 U.S.C. § 102(b), is remote indeed.

139. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 878 (1990) ("Our argument rests on a simple premise: when it comes to invention and innovation, faster is better."); *see also* Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CAL. L. REV. 803 (1988).

expenditures. Accordingly, the faster inventions are created, the greater the economic benefit to society.[140] As a corollary to this, Merges and Nelson, on the basis of empirical studies, conclude that technological development has often been retarded when broad patent protection has been obtained in certain industries.[141] Thus, they conclude that a relatively narrow scope of protection would be preferable, even for fundamental inventions, so that there will be a race-to-improve upon these inventions toward the end of increasing productivity.[142] In contrast, if broad control were provided by the means of patents, this would tend to retard the evolution of a particular technology.

If a broad scope of protection within a given industry and a given country retards technological development in that country, it would logically follow that this retardation would, in all likelihood, increase if uniform worldwide subject matter and duration protection were provided. Thus, industries acquiring broad, worldwide patent protection would have limited incentive for rapid improvement and would proceed to exploit current inventions. Concomitantly, competitors (domestic and foreign) would have limited incentive to improve these patented inventions if such broad control were provided on a worldwide basis. The antidote to this consequence would be to limit the scope of patent protection. This, however, is hardly a likely outcome, particularly in highly industrialized countries, with the possible exception of Japan.[143]

With particular reference to TRIPS, Professor Merges concludes that it may not be in the economic interest of all countries to adopt a strong system of intellectual property protection. "It is difficult in practice to determine which countries would actually benefit from strengthened intellectual property rights. But clearly, a monolithic 'stronger rights' approach will not work. Unless enough country-by-country flexibility can be built into a multilateral framework, bilateralism may be the best solution."[144] Patent TRIPS imposes a contrary solution.

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140. Merges & Nelson, *supra* note 139, at 878.

141. *Id.* at 877, 884-908 (analyzing electrical lighting industry, automobiles and airplanes, radio, semiconductors and computers, chemical industries and science-based industries).

142. *Id.* at 876.

143. *See supra* note 136.

144. Merges, *supra* note 38, at 246.

D. *Prospect Theory*

The prospect theory of patents, developed by Professor Kitch, provides an economic rationale for an essentially natural rights treatment of patents.[145] A prospect is defined as "a particular opportunity to develop a known technological possibility."[146] Thus, Kitch maintains that patent rights should be treated as any other property right, and patent owners should be able to provide broad coordinating power over the future developments of their inventions. Treating patents as property minimizes transaction costs, eliminates the need for secrecy, and provides notice to potential copiers.[147] Kitch argues that providing such broad coordinating power will not result in the underutilization of the inventions because of the availability of competing inventions, which will result in a net societal benefit.[148]

Accordingly, if broad coordinating power is desirable within a given country's patent system, the extension of this coordinating power on a global basis would produce even more desirable economic results. Therefore, it is not surprising that the prospect theory offers a theoretical economic basis for patent TRIPS beyond a pure natural rights theory. Moreover, Professor Kitch, contrary to conventional wisdom that developing countries would submit to TRIPS in order to obtain the trade advantages of GATT, recently concluded that it would be in the self-interest of developing countries themselves to participate.[149]

Kitch's first argument is based upon the realization that the information disclosed in the patent is not adequate to enable the working of patented inventions in developing countries.[150] The rationale for this argument appears to be that a strong patent system is needed to attract technologically sophisticated employers. These employers would need to have access to

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145. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J. L. & ECON. 265, 265 (1977) [hereinafter Kitch, *Nature & Functions*]; *see also* Edmund W. Kitch, *Patents: Monopolies or Property Rights*, 8 RES. L. & ECON. 31 (1986).

146. Kitch, *Nature & Functions*, *supra* note 145, at 266.

147. *Id.* at 276-80.

148. *Id.* at 274.

149. See Edmund W. Kitch, *The Patent Policy of Developing Countries*, 13 UCLA PAC. BASIN L.J. 166, 167 (1994) [hereinafter Kitch, *Patent Policy*] ("A conventional answer would be that [developing countries] join the international intellectual property system in order to gain other trading advantages from the developed world."); *see also* Richard T. Rapp & Richard P. Rozek, *Benefits and Costs of Intellectual Property Protection in Developing Countries*, 24 J. WORLD TRADE 75, 102 (1990) (concluding that protecting intellectual property should be a public policy goal of developing countries).

150. Kitch, *Patent Policy*, *supra* note 149, at 173-75.

technically trained employees, the ability to restrict these employees from transferring this technology to other employers, and the ability to market their products in other markets.[151]

As technological information resides in the hands of patent-owning enterprises in developed countries, this argument assumes that these patent owners are willing to transfer the necessary technology to enable the patent to be worked in a particular country. This assumption may hold occasionally, but it is hardly universal that technology owners have an economic interest in providing the wherewithal to produce an invention in a given country. In most instances, the primary motive of patent owners would seem to be to preserve the import market by means of patents. They would agree to the transfer of technology for the local working of that invention only when it was to their economic advantage, principally in terms of obtaining comparative advantage by local production.[152] Indeed, patent TRIPS has weakened the grounds of the grant of compulsory licenses, as will be discussed *infra*.[153]

Kitch's second argument is based upon the realization that the technological sophistication available in developed countries may not be suitable for developing countries.[154] Thus, developing countries need technology that is adaptable to their particular needs. The argument continues that, with a patent system, an incentive would be provided to local enterprises to develop technology suitable for the particular industrialized level of their country.[155] The assumptions of this argument are that there is sufficient infrastructure to determine what is technologically needed and that enterprises in developed countries have an incentive to provide basic information to accommodate the relatively unsophisticated industrial needs of a particular country. As the owners of technology are more likely to be interested in maintaining an import monopoly in a given country, transfer would occur only in those instances where it would be to their economic interest to transfer technology at whatever level of sophistication.

The third argument is that developing countries should be able to pay for patent rights because "poor countries will inevitably pay proportionately less than wealthy countries for the

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151. *Id.* at 171-76.

152. For example, cheap labor, available raw materials, geographical location, local market size, etc.

153. *See infra* text accompanying notes 171-75.

154. Kitch, *Patent Policy*, *supra* note 149, at 176-77.

155. *Id.* at 177.

use of patent rights."[156] Again, the assumption is that patent owners are willing to license enterprises in developing countries. Does "proportionality" mean in proportion to the absolute value paid in developed countries or, perhaps, upon the ratio of gross domestic product or some other proportional scale? In any event, with the admission that developing countries require know-how in addition to patent rights, one would expect that developing countries would pay proportionally more, as they require more than a mere naked patent license, which may be all that is needed in an industrialized country.[157]

In sum, these arguments apparently depend upon the assumption of a willingness on the part of patent and technology owners to transfer the necessary technology to developing countries in order to enable enterprises in developing countries to work the patented inventions. Such an assumption may run contrary to normal assumptions concerning the economic behavior of patent and technology owners.

E. *Portable Fence Theory*

Professor Reichman postulates that international law should establish for intellectual creations a "surrogate form of ownership by instituting a fictitious system of portable fences."[158] Such a portable fence would bar the replication of an intellectual creation of another while permitting the transfer of ideas from one mind to another.[159] He argues that, in light of the current economic

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156. *Id.*

157. It is, at least, the anecdotal impression of the author, while engaged in licensing patents and know-how for multinational corporations to enterprises in developing countries, that this was the expectation.

158. Reichman, *GATT Connection*, *supra* note 35, at 803. Professor Reichman has written extensively on the GATT negotiations concerning intellectual property. *See generally*, Reichman, *Universal Minimum Standards*, *supra* note 95; J.H. Reichman, *The TRIPS Component of the GATT's Uruguay Round: Competitive Prospects for Intellectual Property Owners in an Integrated World Market*, 4 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 171, 173-78, 254-66 (1993); J.H. Reichman, *Beyond the Historical Lines of Demarcation: Competition Law, Intellectual Property Rights and International Trade After the GATT's Uruguay Round*, 20 BROOK. J. INT'L L. 75 (1993); J.H. REICHMAN, IMPLICATIONS OF THE DRAFT TRIPS AGREEMENT FOR DEVELOPING COUNTRIES AS COMPETITORS IN AN INTEGRATED WORLD MARKET (United Nations Conference on Trade and Development Discussion Paper No. 73, 1993).

159. Reichman, *GATT Connection*, *supra* note 35, at 803.

> The costs of the patent system include (besides inducing potentially excessive investment in inventing) driving a wedge between price and marginal cost . . . . Once an invention is made, its costs are sunk; in economic terms, they are zero. Hence a price that includes a royalty to the inventor will exceed the opportunity cost of the product in which the

necessity to innovate, any historical differences between tangible property and intellectual property are anachronistic. This conclusion, he urges, does not result "from an appeal to natural justice," but rather "from refined economic analysis."[160]

The next step in Reichman's logic is to posit that the portable fence against replication of intellectual products does not stop at the boundaries of the given country but follows that product wherever it goes.[161] Because the tangible property of aliens is protected under international law from confiscation, he reasons by analogy that intangible intellectual property, which often is much more valuable, should be similarly protected against such expropriation. "To pretend that aliens have no legal claims arising from wholesale, unauthorized uses of their most valuable property while respecting laws that protect less valuable alien property only because it is tangible rather than intangible is to exalt form over substance."[162]

While Professor Reichman's arguments are ingenious, they contain that element of circularity that is inherent when addressing the philosophical foundations of property, and, in particular, whether a right of property inheres in intangible intellectual creations. This is the paradox of value: does property have inherent value as a natural right entitlement, or is it only valuable because society has decided to protect it, presumably on utilitarian or instrumentalist grounds?[163] If the fence vanishes once an intellectual creation leaves the domestic jurisdiction of the fence-erecting country, so goes its value. In essence, this portable fence would appear to be an aspect of an entitlement arising from natural rights, so its value must be recognized even

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> invention is embodied. *This wedge, however, is analytically the same as the cost of a fence to demarcate a property right in land*; it is an indispensable cost of using the property rights system to allocate resources.

POSNER, ECONOMIC ANALYSIS, *supra* note 59, at 39-40 (emphasis added). The imposition of the cost of a "portable fence" raises the question of whether there is sufficient incentive to invent without portability.

160. Reichman, *GATT Convention*, *supra* note 35, at 806.

161. *Id.* at 806-811.

162. *Id.* at 810-11.

163. This is well put by Professor Penrose:

> The more widely a good can be used, the greater, surely, is its total usefulness and to limit its use is to limit its usefulness although this may at the same time give it an economic value. This is, of course, a restatement of the famous paradox of value, but so far as inventions are concerned a price is put on them not because they are scarce but in order to make them scarce to those who want to use them.

PENROSE, *supra* note 7, at 22.

though to do so may be to the economic disadvantage of a particular country (*i.e.*, be noninstrumentalist). It is, of course, more efficient for a particular nation to permit the replication of intellectual creations of foreigners (free ride) than it is to pay rents for the purchase of the imported "patented" product in addition to being excluded by the fence from replicating it.[164]

In short, it would seem that the portable fence theory, requiring the acceptance of a universal system of patent protection, is founded on the premise (*a priori*) that an inadequate number of intellectual products would be created without such a worldwide incentive. Nonetheless, it is far from clear that inadequate incentives were being provided when each country could determine its own national policy for protection or that universal protection is better adapted to optimize social welfare on a global scale, let alone at the national level.[165]

F. *Summary*

The foregoing analysis, even if somewhat speculative, does not lead to the clear conclusion that the identified natural right aspects of patent TRIPS can be justified on any of the economics-based theories. The patent-induced and rent-dissipation theories lead to contrary conclusions, primarily because of the over-incentive being provided by a uniform global system. The race-to-invent theory does not support these natural rights aspects because of the likelihood of retardation in the development of given technologies due to centralized control on a worldwide basis. The prospect theory is the antithesis of the race-to-invent theory, but it depends upon the premise that broad coordinating power in the hands of patent owners would achieve efficient results, not only on the domestic level but also at the global level.

While it may be admitted that intangible intellectual creations may be more "valuable" than tangible property, this does not resolve the issue of whether that value (the portable fence) results because it is created by the sovereign as a privilege or results as a natural right entitlement. Indeed, it may be asked whether the fundamental purpose of an international system based on a natural property right theory is to induce inventions or to prevent the replication of inventions.

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164. The patent owner may elect to exploit the patent solely by importation or may collect royalties by licensing domestic enterprises, whichever presumably optimizes profits.

165. *See supra* note 8.

IV. ECONOMIC IMPACT AND STRATEGIES

A. *Economic Impact*

The big winners under patent TRIPS would clearly be those enterprises (read multinational corporations) in developed countries that create inventions and are heavily engaged in international trade. Particular winners would be those entities in the pharmaceutical and agricultural chemical industries that receive "supernatural" property rights under patent TRIPS. The benefits are clear: patent protection is now mandated for fields of technology that were previously unprotected in many countries, and the duration of protection is set at twenty years from the filing date compared to significantly shorter periods, even when that subject matter was protected.

Again to the advantage of such enterprises in developed countries is that under Article 6 of TRIPS the "exhaustion of intellectual property rights" is retained within the domestic jurisdiction of the respective members.[166] Such a retention appears inconsistent with a natural rights theory. Under natural rights, the invention itself is theorized as being ubiquitous and hence entitled to protection everywhere by its nature. For purposes of logical consistency within a natural property rights theory, it should follow that, once an invention is placed in commerce ("first sale") by the patent owner or with the owner's authorization, this should "exhaust" any patent rights anywhere in the world and the product may freely cross national borders.[167] After all, it is a primary goal of the GATT to enhance free trade.[168]

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166. "For the purposes of dispute [resolution] under this Agreement, subject to the provisions of Articles 3 [national treatment] and 4 [most-favored-nation treatment] above, nothing in this Agreement shall be used to address the issue of the exhaustion of intellectual property rights." TRIPS, *supra* note 6, art. 6.

167. The United States imposes essentially a territorial exhaustion doctrine. *See* 4 DONALD S. CHISUM, PATENTS § 16.03(2) (1995) (U.S. application of the "first-sale" doctrine); *id.* § 16.05(3) (U.S. application of exhaustion doctrine with respect to imported products). Compare the European community, which imposes an essentially community-wide exhaustion doctrine.

> More extensive rights recognised [sic] by national legislation or case-law on the exercise of patents or trademarks (or analogous rights) such as the right to object to the importation of goods which have been marketed in another Member State by or with the consent of the patentee or trade mark owner, are not saved by the terms of the first sentence of Article 36 EEC. In these circumstances the rights are said to have been exhausted.

While all members *must* provide a broad subject matter protection for a long uniform term for all inventions, according to Article 6,[169] individual members *may* adopt a very restrictive exhaustion policy to exclude importation of patented inventions legitimately made in other member states with the authorization of the patent owner.[170] This retention of the exhaustion doctrine within the domestic jurisdiction of members provides significant trade advantages to patent owners. They may control production and optionally exploit their patents domestically. In other countries where patent protection has been obtained, they may maintain an import monopoly or may exploit that market by licensing. Yet, under the domestic exhaustion rule of the producing countries, the patent owner or licensee can restrict access to its domestic market and hence avoid any adverse competition that may arise from comparative advantages of foreign authorized production.

Patent TRIPS, furthermore, weakens the ability of members to use compulsory licenses in order to insure local working of inventions when those inventions are only being exploited in their country by importation. In Article 31, restrictions are added beyond those provided in Article 5A of the Paris Convention,[171]

P.J.G. KAPTEYN & P. VERLOREN VAN THEMAAT, INTRODUCTION TO THE LAW OF THE EUROPEAN COMMUNITIES 399 (Laurence W. Gormley ed., 2d ed. 1989). *See also* Bronckers, *supra* note 93, at 1268) (discussing worldwide exhaustion and concluding "I submit that it would be simply wrong for the developed countries to blame a developing country for choosing a broad exhaustion doctrine.").

168. The preamble of the original GATT Agreement of 1947 provides: "Being desirous of contributing to these objectives by entering into reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce." General Agreement on Tariffs and Trade, *opened for signature*, Oct. 30, 1947, 61 Stat. A3, 55 U.N.T.S. 194, 196 [hereinafter GATT].

169. TRIPS, *supra* note 6, art. 6.

170. *Id.*

171. A.—(1) The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the countries of the Union shall not entail forfeiture of the patent.

(2) Each country of the Union shall have the right to take legislative measures providing for the grant of compulsory licenses to prevent the abuses which might result from the exclusive rights conferred by the patent, for example, failure to work.

(3) Forfeiture of the patent shall not be prescribed except in cases where the grant of compulsory licenses would not have been sufficient to prevent such abuses. No proceeding for the forfeiture or revocation of a patent may be instituted before the expiration of two years from the grant of the first compulsory license.

(4) A compulsory license may not be applied for on the ground of failure to work or insufficient working before the expiration of a period of four years from the date of filing of the patent application or three years

including the requirement that an effort be made to obtain a license from the patent owner prior to seeking a compulsory license.[172] Also, the compulsory license may only be granted for a limited scope and duration and for an authorized purpose.[173] Indeed, for semiconductor technology, a compulsory license may only be obtained for public noncommercial uses or to remedy an anticompetitive practice.[174] Thus, it would appear that semiconductor technology is excluded from any local working requirement except on these two grounds. Semiconductor technology may not rise to the "supernatural" rights status of pharmaceuticals and agricultural chemicals, but the technology does receive super-immunity from compulsory licenses. Moreover, any compulsory license granted must be "predominantly for the supply of the domestic market."[175] Thus, compulsory licensees would be precluded from achieving economies of scale by exporting, even to countries where the patent owner has not obtained analogous patent protection.

A final benefit to patent-owning enterprises is the requirement in TRIPS that members implement various domestic remedies with respect to violations of intellectual property rights.[176] In addition, procedures are provided within the World Trade Organization (WTO) for dispute resolution concerning whether members are in compliance with the mandates of TRIPS.[177]

Presumably, developed countries also will be beneficiaries under the "trickle down" effect from patent-owning enterprises having primary industrial bases within such countries. Again,

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from the date of the grant of the patent, whichever period last expires; it shall be refused if the patentee justifies his [or her] inaction by legitimate reasons. Such a compulsory license shall be non-exclusive and shall not be transferable, even in the form of the grant of a sub-license, except with that part of the enterprise or goodwill which exploits such license.

(5) The foregoing provisions shall be applicable, *mutatis mutandis*, to utility models.

Paris Convention, *supra* note 26, art. 5(A).

172. TRIPS, *supra* note 6, at art. 31(b).

173. *Id.* art. 31(c).

174. *Id.*

175. *Id.* art. 31(f).

176. *Id.* arts. 41-61.

177. *Id.* art. 64 (making the provisions of Articles XXII and XXIII of GATT applicable to disputes under TRIPS); *see generally* Paul Edward Geller, *Intellectual Property in the Global Marketplace: Impact of TRIPS Dispute Settlements?*, 29 INT'L LAW 99 (1995); Robert E. Huder, *Dispute Settlement*, *in* COMPLETING THE URUGUAY ROUND: A RESULTS-ORIENTED APPROACH TO THE GATT TRADE NEGOTIATIONS 180 (Jeffrey J. Schutt ed., 1990) (discussing shortcomings of dispute resolution mechanisms).

presumably, these enterprises will increase investment in research and development, thereby increasing the number of inventions and hence the productivity to the benefit of these countries and the economic and social well-being of their nationals. Nonetheless, the economic theories discussed above cast some doubt over the significance of any welfare gains to be achieved by any increased investment in creating inventions.[178] While it seems likely that there will be some increased investment in research and development (R&D), there may also be significant profit taking with only marginal increases in R&D expenditures.[179] Indeed, it would be surprising if the increases in R&D would be proportional to the added incentives provided by a worldwide market with universal subject matter and duration protection.

In sum, one should remain agnostic concerning the long-term benefits accruing to developed countries from the implementation of patent TRIPS. There may, and probably will, be short-term advantages to multinational corporations operating out of developed countries, provided TRIPS is fully implemented and enforced.

At first blush, the biggest losers under patent TRIPS would appear to be the so-called newly industrialized countries (NICs), which, after all, were the basic target of TRIPS.[180] Enterprises within these countries availed themselves of foreign technology, had the industrial capability of replicating it, and were evidently competing effectively with the creators of this technology.[181] If

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178. *See supra* text accompanying notes 107-65.

179. This would appear to be the economic consequence of a switch from an instrumental view of providing an incentive to create to an entitlement view of reaping the rewards of creation by excluding others.

180. NICs or newly industrializing economies (NIEs) are defined by Primo Braga as follows:

> NIEs are defined here as those developing economies that by 1989 had an income per capita of at least U.S. $2,000, a share of manufacturing in gross national product of at least 30 percent, and exports of manufactured products accounting for more than 40 percent of total export revenues. Brazil, Hong Kong, Malaysia, Mexico, Singapore, the Republic of Korea, and Taiwan qualify as NIEs according to these criteria.

Carlos Alberto Primo Braga, *The Newly Industrializing Economies*, *in* GLOBAL DIMENSIONS, *supra* note 8, at 168-69.

181. *See* Robert E. Evenson, *Global Intellectual Property Rights Issues in Perspective: A Concluding Panel Discussion*, *in* GLOBAL DIMENSIONS *supra* note 8, at 360-63. Professor Evenson divides developing countries into stages. Stage 1 countries are essentially the least developed countries. Stage 2 countries are more industrially advanced and range from those that have a "mastery of conventional technology" to those that are in transition to being NICs and those on the "threshold of technological competitiveness." Evenson, *supra*, tbl. 16-1; *see also* Braga, *supra* note 180, at 169 ("It is also worth mentioning that all of

the governments of the NICs fully implement patent TRIPS, it should follow that this type of copying will be retarded within the limits of enforcement. This would force enterprises operating within these countries either to develop their own technology or to seek licenses from the patent owners. The course of acquiring licenses may, in the short term, be the preferred one, provided that patent owners are amenable to granting licenses.[182] As these countries have made significant technological progress in a very short period of time, it would seem that enterprises within NICs will shortly have the capability of producing their own technology, with the advantage of its particular adaptability to their state of industrialization. Thus, over the long run, a worldwide patent system, by protecting technology that may be more readily usable domestically and transferable to other countries in the Third World, may be to the advantage of the NICs.

It is difficult to perceive what benefits will accrue to developing countries, in particular LDCs, by the implementation of patent TRIPS, unless the implementation results in the increased transfer of technology to these countries. Increasing patent protection without the concomitant development of an industrial infrastructure with technological capability would not advance whatever instrumental goals TRIPS espouses with respect to third world countries.[183] It is unlikely that the "security interest" of patent protection will necessarily result in the transfer of technology.[184] Moreover, by the uniform subject matter and duration requirement, LDCs must compete for transfer of technology on grounds other than the extent of patent protection provided. In addition, the primary model for developing countries and particularly LDCs redounding under patent TRIPS would appear to be that of consumers. The

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them were exporting more than U.S. $3 billion per year of knowledge-intensive products by the end of the 1980s.").

182. This may, in certain circumstances, present significant advantages to patent owners over relying upon the import monopoly or trying to enforce their patents in a foreign forum. Enterprises in NICs may also soon be in a position to license or cross license their own patents. *See* J. Davidson Frame, *National Commitment to Intellectual Property Protection: An Empirical Investigation*, 2 J.L. & TECH. 209, 216 (1987) (indicating that U.S. patents were being acquired by enterprises in NICs).

183. *See supra* text accompanying note 80 (quoting preamble of TRIPS).

184. Mansfield, *supra* note 107, at 107, 130 (study indicating no significant statistical relationship between the strength of intellectual property protection in a country and direct investment by U.S. terms); *see also* Oddi, *International Patent System*, *supra* note 108, at 848-55 (discussing the limited utility of patents to developing countries for implementing the transfer of technology).

implementation of TRIPS insures an import monopoly in these countries for the exploitation of patented products, with little incentive for the local working of these inventions unless a particular country would provide some form of comparative advantage.[185]

There also would appear to be relatively little incentive for invention creators in developed countries to develop inventions at the technological level required by these countries in their status as consumers subject to an import monopoly. Hence, it appears likely these countries will remain consumer countries rather than productive participants in world trade beyond whatever natural resources may be exploitable.[186] Consequently, in either the short or long run, it is difficult to foresee that patent TRIPS will accrue to the benefit of developing countries, especially LDCs, unless incentives outside the patent system are provided for the transfer of technology and hence the industrialization of these countries.

Indeed, the natural rights aspects of inventions may be seen as eliminating the comparative advantage of those nations that previously provided no or weak patent protection for particular classes of inventions. Prior to patent TRIPS, those nations that did not protect particular classes of subject matter or protected them only for a short period of time had a comparative advantage in relation to those nations that did. If patent protection is not subject to the self-interest of individual countries, why, in the next round of GATT, should this not be extended to the elimination of other types of comparative advantage traditionally admitted by positive law?[187]

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185. *See supra* note 152.

186. Even with respect to natural resources, as summarized by Arnold: "The extent of Third World resources, therefore, has to be viewed with caution. Just because a country or region has an abundance of minerals (or one particular mineral) does not automatically ensure economic prosperity. Indeed and perversely, it may produce the reverse." GUY ARNOLD, THE THIRD WORLD HANDBOOK 161 (2d ed. 1994). Factors that result in the reverse include the power of MNCs in that country and political pressures to raise revenue quickly. *Id.*

187. To "even the playing field," should minimum comparable wage and environmental standards be imposed? Should tax or other incentives (*e.g.*, for exploration for natural resources or for research and development) be eliminated? This is to say nothing of the problems of agricultural subsidies as a perennial point of contention among developed countries. *See* NEGOTIATING HISTORY, *supra* note 34, at 127-254 (discussing historical background, negotiations during Uruguay Round, and including an extensive bibliography on the problem of agricultural subsidies).

B. *Strategies*

Some strategies for coping with patent TRIPS may be suggested to those countries impacted by them. Such strategies are primarily based on existing practices within various developed countries or on specific provisions of TRIPS. These suggestions are offered, however, with the caveat that an overzealous application or extension of any of these suggestions may result in complaints of noncompliance with TRIPS, thus evoking the dispute resolution mechanisms under the Agreement or resulting in bilateral pressures being applied by developed countries at the instance of patent owning enterprises.[188] Nonetheless, some of these suggestions may mitigate certain perceived adverse consequences of the implementation of patent TRIPS, particularly within developing countries and LDCs.

One suggestion would be to establish a fee for patent acquisition at a level adequate to completely fund the patent-granting agency in the country. Indeed, countries might follow the example of the United States to add a surcharge to fees, making them adequate not only to provide for a self-financing agency but also to generate excess funds, which can then be used for other governmental functions.[189]

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188. *See* Oddi, *International Patent System*, *supra* note 108, at 873-75 (discussing the potential repercussions from straying too far from the norms of conduct expected of third world countries).

189. A surcharge was imposed on U.S. Patent and Trademark Office fees under the Omnibus Budget Reconciliation Act of 1990 (PL 101-508). Congress must approve any expenditure from this fund. *See* 35 U.S.C. § 42(e) (Supp. 1993). Since the inception of the surcharge, Congress has diverted an estimated $60 million, and this is expected to increase and continue with the surcharge being extended until 2002. *See Judiciary Votes Along Party Lines to Extend Surcharge on Patent Fees*, 50 PAT. TRADEMARK & COPYRIGHT J. 559-60 (BNA 1995).

It may be anticipated that for those developing countries that are members of the Patent Cooperation Treaty, June 19, 1970, 28 U.S.T. 7645, 1160 U.N.T.S. 231 (amended Oct. 2, 1979 and modified Feb. 3, 1984) a majority of applications will originate as international applications filed under the Treaty with developing countries being designated states. Nonetheless, the suggestions made herein may be effected to the extent possible within the national procedure after the application is transmitted to the respective designated offices. Note that national fees may be imposed. *See id.* art. 22. *See also id.* art. 27 ¶ 5:

> Nothing in this Treaty and the Regulations is intended to be construed as prescribing anything that would limit the freedom of each Contracting State to prescribe such substantive conditions of patentability as it desires. In particular, any provision in this Treaty and the Regulations concerning the definition of prior art is exclusively for the purposes of the international procedure and, consequently, any Contracting State is free to apply, when determining the patentability of an invention claimed in an international application, the criteria of its national law in respect of prior

Those industries that benefit most from the patent system in a given country might be expected to pay in accordance with the benefits afforded to them. For example, fees could be based upon the worldwide assets of multinational corporations seeking patent protection in the country. Alternatively, or in addition to an assets approach, fees may be based upon the subject matter of patent applications. Thus, pharmaceutical, agricultural chemical, and semiconductor inventions may be required to pay augmented fees. Such an asset or subject-matter-based fee system would not be contrary to the national treatment requirement of TRIPS, the Paris Convention, or the Berne Convention, because domestic corporations would be treated the same as foreign ones.[190] Of course, as the vast majority of patent applications in developing countries are filed by foreign enterprises, the impact would fall upon the actual beneficiaries of the system.[191]

Also, countries may charge a multiplicity of fees.[192] In addition to filing fees should be examination fees, search fees, reexamination fees, issuance fees, etc. Moreover, maintenance fees on a periodic basis, even yearly, would seem desirable. A set fee for all patents could be established, which could then be augmented by an additional fee based on a percentage of the domestic sales of the patented invention.[193]

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art and other conditions of patentability not constituting requirements as to the form and contents of applications.

Id. However desirable fees may be, many LDCs, of course, do not have functioning patent offices. *See* Evenson, *supra* note 181, at 361 (indicating that about 60 to 70 LDCs have essentially no intellectual property systems).

190. Domestic subsidiaries of MNCs could be treated as domestic corporations for the purposes of fees if this would serve as an incentive to establish a domestic subsidiary or related enterprise.

191. A 1974 study of the United States Conference on Trade and Development (UNCTAD) found that no more than 1% of patents granted in developing countries were owned by their nationals. *See* U.N. DEP'T OF ECON. & SOC. AFF., UNCTAD SECRETARIAT AND INT'L BUREAU OF THE WIPO, THE ROLE OF THE PATENT SYSTEM IN THE TRANSFER OF TECHNOLOGY TO DEVELOPING COUNTRIES 92, U.N. Doc. TD/B/AC.11/19 (1974). In 1984, according to statistics collected by WIPO, approximately 90% of patents granted in developing countries that are members of the Paris Union were granted to foreigners. *See* WORLD INTELLECTUAL PROPERTY ORGANIZATION, INDUSTRIAL PROPERTY STATISTICS 8-9, WIPO Doc. No. IP/STAT/1984/B (Publication B) (1985). The most recent statistics indicate no significant change. *See* WORLD INTELLECTUAL PROPERTY ORGANIZATION, INDUSTRIAL PROPERTY STATISTICS 1-9, WIPO Doc. IP/STAT/1993/A (Publication A) (1993).

192. The U.S. model may be useful. See 35 U.S.C. § 41 (1988), which imposes fees for, *inter alia*, filing, issue, disclaimer, filing appeal, brief and oral hearing, revival of abandoned application, extensions, national fee for international application, maintenance, recording, photocopies, and patent copies.

193. The problem with this approach is, of course, that the patent owners will, if competition permits, pass on the augmented fees to the consumers. Thus,

Revenues received in excess of the cost of operating the patent office could thus be used for any other governmental functions or deficit reduction; however, it might be politic to apply the excess to technical education, industrial development, or related activities.

Another suggestion is based upon a requirement of Article 29 of patent TRIPS obligating members to require that applicants for a patent "disclose the invention in a manner sufficiently clear and complete for invention to be carried out by a person skilled in the art and may require the applicant to indicate the best mode for carrying out the invention."[194] The enabling requirement is, of course, boilerplate in most patent statutes.[195] However, developing countries in particular should take this requirement seriously and should insist upon a complete disclosure, which will enable the making of the invention in that particular developing country. Hence, mere translations of patent applications as originally filed in other countries should not be automatically accepted.[196] The statutory requirements for enabling disclosure could be quite specific in requiring specifications, blueprints, dimensions, chemical compositions, exact temperatures, pressures, bill of materials, equipment requirements, etc.

Impacted countries could impose the optional "best mode" requirement with the clear understanding that the disclosure should be of the best mode of making and using the invention in

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some differentiation would seem advisable, for example, between inventions on luxury items and those related to essentials.

194. TRIPS, *supra* note 6, art. 29 (Conditions on Patent Applicants):

> 1. Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art and may require the applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date or, where priority is claimed, at the priority date of the application.

195. Article 29 essentially tracks 35 U.S.C. § 112 ¶ 1 (1988):

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his [or her] invention.

TRIPS, *supra* note 6, art. 29.

196. *Cf.* Herbert Stumpf, *Interests and Conflicts of Interest in Technology Transfer: The Role of Patents*, 9 INT'L REV. INDUS. PROP. & COPYRIGHT L. 309, 315 (1978)(claiming that translation into the language of the developing country to be one of the major advantages to their grant of patents).

that country while taking into account the availability of equipment, components, materials, etc.[197]

Another suggestion for impacted countries would be to adopt a Japanese model of patent prosecution and scope of protection.[198] The patent prosecution should be made as complex and lengthy as possible to ensure formal compliance with the patent statute and, moreover, ensure scrupulous compliance with the enabling requirement, as discussed *supra*. Extending the pendency period of a patent would accordingly cut into its duration, which is mandated by Article 33 to run from the filing date in that country.[199]

In order to quickly disseminate the technological information contained within the patent application, the application should be published as soon as possible after filing. There is no requirement that the application not be published, as is the current practice in the United States, or only after an extended period, such as eighteen months after filing, which is the practice in many countries.[200]

An opposition procedure may also be implemented so that any interested parties may oppose the grant of this particular application.[201] This has the advantage of having interested parties provide the best prior art and also augmenting the technological search capability of the domestic patent office.

A high standard of patentability should be adopted to ensure that mere detail patents of the type that tend to be market-

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197. While the "best mode" requirement under § 112 is generally construed as being a subjective standard (*See* 2 CHISUM, *supra* note 167, § 7.05[1]), there is no reason why inventors seeking patents in a particular country should not be required to disclose what they would consider to be the best mode in that country, rather than in the country of origin.

198. *See supra* note 136.

199. Adhering to this suggestion too vigorously could, of course, result in repercussions. For example, in response to pressure from the United States, Japan has agreed to permit filing of applications in English and to permit correction of translation errors during prosecution and after grant. In addition, Japan has agreed to eliminate pre-grant oppositions. In return, the United States agreed to a 20-year term from the filing date and to publication of applications 18 months after filing and to expand re-examination procedures. *See U.S. Says "Not Now" on First-to-File and Agrees with Japan on Patent Term*, 47 PAT. TRADEMARK & COPYRIGHT J. 285, 285-86 (BNA 1994); *U.S. Japan Conclude Agreement on Reexamination and Publication*, 48 PAT. TRADEMARK & COPYRIGHT J. 412, 412-14 (BNA 1994). The 20-year term has already been implemented under patent TRIPS. Bills have been introduced for publication (H.R. 1733) and for expanding re-examination (H.R. 1732).

200. *See* 2 BAXTER ET AL., *supra* note 102, § 5.01 (listing publication dates of applications, with 18 months from filing being a common time, including that of the European Patent Office).

201. *See id.* §§ 14.01-14.04 (summarizing the procedures employed by countries having oppositions).

induced rather than truly revolutionary or basic inventions are not granted. Article 27, after all, imposes a Western standard for patentability.[202] Patent offices within impacted countries should demand the search results from corresponding applications as generated by the major patent offices of the world as authorized by Article 29, paragraph 2, and use these results as a guide for disposition.[203] However, the mere fact that a patent had been granted on an analogous patent application in another country should not be determinative of whether or not a patent should be granted in this country.[204]

Care should be taken not to equate the enabling standard of a person skilled in the act in *this country* with the "nonobviousness" or "inventive step" substantive requirement. An impacted country could base its substantive standard for the grant of a patent on whether the claimed invention would be nonobvious to a person skilled in that art anywhere in the world.[205]

Further, it is suggested that a pre-grant opposition procedure be implemented, thus providing competitors with an opportunity to oppose the grant of the particular claims.[206] Post-grant challenges to the patent and re-examination procedures would also be suggested.[207] Of course, appropriate fees should be imposed in order to fully underwrite all of the procedural steps involved in the grant and post-grant periods.

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202. *Cf.* TRIPS, *supra* note 6, art. 27 *with* 35 U.S.C. §§ 101, 102, 103 (1994), art. 52 of the European Patent Convention of 5 October 1973 (as amended) (inventions must be "susceptible of industrial application, which are new and which involve an inventive step") and arts. 54-55 (novelty) and art. 56 (defining "inventive step" in terms of nonobviousness), *reprinted in* 2K JOHN P. SINNOTT, WORLD PATENT LAW AND PRACTICE 30-32 (1994).

203. TRIPS, *supra* note 6, art. 29(2) ("Members may require an applicant for a patent to provide information concerning [the applicant's] corresponding foreign applications and grants.").

204. The Paris Convention, *supra* note 26, art. 4, after all, mandates the independence of patents. Thus, invalidating a patent in one country does not automatically invalidate the corresponding patent in another. *Id.* art. 4 ¶ 2. The same should follow for the independence in granting.

205. What may be nonobvious in a developing country because of its relatively low level of technological development may be obvious to one skilled in the art in a developed country.

206. For example, in Japan, a two-month period after publication is provided when "any person" may file an opposition to the grant of a patent. *See* The Patent Law and the Enforcement Law Thereof, Law No. 121, Apr. 13, 1959 (as amended) arts. 55-65, *reprinted in* 2F JOHN P. SINNOTT & WILLIAM J. COTREAU, WORLD PATENT LAW AND PRACTICE 28.1-30 (Japan) (1995).

207. An example is the re-examination procedure in the United States. 35 U.S.C. §§ 301-07 (1988).

A statutory provision should be included in the patent acts of impacted countries to establish a narrow scope of protection. Accordingly, there should be a very limited doctrine of equivalents, and claims should be interpreted narrowly.[208] This essentially follows the Japanese model and, when coupled with early publication of the application, enables competitors to file for patents on improvements on the published invention.[209] Thus, competition among the various entities for improvements on the basic invention will be engendered, and any improvement patents issued will be limited to a narrow scope.

A procedure for dealing with "blocking patents" should be established. Thus, when a basic patent would otherwise block an improvement patent, some form of compulsory licensing system should be available, such as indicated in Article 31(l) of patent TRIPS.[210] Such a procedure would aid access to the improvement in the country.

Another suggestion is that impacted countries adopt a worldwide exhaustion doctrine, building upon the model of the European Union.[211] Under a worldwide exhaustion doctrine, any patented product sold by or with the authorization of the patent owner may be imported into the country without regard to whether that particular product is patented in that country. Thus, the first authorized sale anywhere removes any fences from the product, and it may be freely imported into the country. This

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208. This would avoid the problems that the United States in particular has had with the doctrine of equivalents. *See generally*, CHISUM, *supra* note 167, § 18.04.

209. *See supra* note 136 (Japanese practice).

210. Where the law of a Member allows for other use of the subject matter of a patent without the authorization of the right holder, including use by the government or third parties authorized by the government, the following provisions shall be respected:

. . . .

(l) where such use is authorized to permit the exploitation of a patent ("the second patent") which cannot be exploited without infringing another patent ("the first patent"), the following additional conditions shall apply:

(i) the invention claimed in the second patent shall involve an important technical advance of considerable economic significance in relation to the invention claimed in the first patent;

(ii) the owner of the first patent shall be entitled to a cross-license on reasonable terms to use the invention claimed in the second patent; and

(iii) the use authorized in respect of the first patent shall be non-assignable except with the assignment of the second patent.

TRIPS, *supra* note 6, art. 31.

211. *See supra* note 167. *See also* Judgment of Mar. 23, 1995 (Japanese Auto Prods. Kabushiki Kaisha & Anor. v. BBS Kraftfahrzeug Technik A.G.), Kōtō Saibansho [Tokyo High Court], No. 3272 of 1994 (Japan).

will permit competition in a particular patented product manufactured in and exported from various countries throughout the world with the authorization of the patent owner.

An exception to this exhaustion rule may be considered to the effect that, if the patented invention is domestically worked, worldwide exhaustion would not apply. Hence, the domestic patent owner or licensee could exclude patented products originating from other countries as an incentive for local working. There is a downside to such an exception. The universal adoption of such a rule could seriously hamper domestic enterprises from competing in the international market.[212]

As many impacted countries will serve only as consumers of patented products, with little or no hope of any actual transfer of technology and local working of such products, it would seem appropriate that, at least with respect to products charged with a national interest (*e.g.*, health, safety, food production, and basic services), particular controls for foreign imports be imposed within the GATT framework. Thus, for example, with regard to pharmaceutical and other medical products, governmental controls could be established with respect to such products. This certainly is not an unknown model in the developed world.[213] This may be implemented by price or profit regulation or by centralized buying based upon competitive bidding for substantially identical or equivalent products. Such regulation would avoid dissipation of valuable foreign exchange, and would tend to neutralize the excessive demand created by extensive advertisement and promotional activities.[214]

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212. On the other hand, the principal market for domestically produced products may be in developed countries with the authorization of the patent owners, who have elected to work particular inventions locally because of comparative advantages in the developing country.

213. *See* M. Dickson, *The Pricing of Pharmaceuticals: An International Comparison*, 14 CLIN. THER. 603 (Abstract), *available in* LEXIS, Medlne Library.

> Four types of pricing policies and regulations are recognized: product price control, as practiced in France, Italy, Portugal, and Spain; reference pricing, as in Germany and the Netherlands; profit control, as in the United Kingdom; and no control, as in the United States. The system in Canada is a hybrid of product price control and reference pricing; a producer may set any price for a new product as long as it is within guidelines established by a federal government review board.

Id.

214. Developing countries can thus learn from the various control mechanisms used in the developed world. *See id.* The end result should be a leveling of prices to the world level whether the pharmaceutical is unpatented or patented. Indeed, it would appear that many developing countries are well along on the learning curve. *See* Rapp & Rozek, *supra* note 149, at 96 (indicating that

A final general suggestion would be the adoption of measures that would encourage the transfer of technology to impacted countries, and hence provide incentives for that transfer and for the development of technological capability and industrial infrastructure. One could reduce or eliminate patent maintenance fees with respect to patented inventions that involve transfer of technology to implement local working. To further strengthen the incentive to work locally, strong trade secret protection legislation could be adopted by fully implementing Article 39 of TRIPS.[215] One of the arguments against transfer of technology to developing countries has been the inadequacy of trade secret protection.[216] The legislation could be made specific to technology transfers as part of a patent licensing arrangement so as to enjoin the use of any misappropriated trade secrets at least for the term of the patent protection.

In all likelihood, the competition over technology transfer and industrialization among developing countries will increase under the harmonizing effect of TRIPS throughout the world. Nonetheless, it is still possible for an individual country to provide augmented incentives by means of its patent system for particular categories of inventions considered to be of high benefit to that country. For example, a country having a severe problem with certain diseases may provide increased incentives with respect to inventions relating to such diseases, such as, longer terms, reduced fees, and in rem protection.[217]

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at least 38 developing countries have adopted some form of price regulation for pharmaceuticals).

215. *See supra* note 137 (quoting TRIPS, art. 39).

216. *See* Oddi, *International Patent System*, *supra* note 108, at 851-52, 851 n.86. Kitch apparently believes the major problem is misappropriation of trade secrets by employees of enterprises in developing countries. *See* Kitch, *Patent Policy supra* note 149, at 175, where he states that "Oddi discusses the trade secrecy issue, but then dismisses it for reasons that are unclear." *Id.* at n.12. In the author's view, the major problem is that technology owners in developed countries are unwilling to release trade secrets to enterprises in developing countries when such countries lack a legal basis, procedure, and remedies (especially injunctive relief) for the unauthorized disclosure of trade secrets. Hence, § 7 (Protection of Undisclosed Information) of patent TRIPS is supposed to solve both problems.

217. See the proposal for a "transfer-of-technology" patent conditioning the grant of such a patent upon a preexisting foreign patent and the transfer of adequate know-how to work the claimed invention in the operating country. 2 WORLD INTELLECTUAL PROPERTY ORGANIZATION, WIPO MODEL LAW FOR DEVELOPING COUNTRIES ON INVENTIONS §§ 601-16, at 82-102, WIPO Publication No. 841(E) (1980). *See also* Oddi, *International Patent System*, *supra* note 108, at 871-73 (discussing advantages of such a patent to developing countries). *See also* Oddi, *Beyond Obviousness*, *supra* note 108, at 1137-41 (discussing augmented protection to be afforded to "revolutionary" patents).

Outside of the intellectual property system, impacted countries may also follow the lead of developed countries in providing incentives for establishing industrial facilities in a given location by providing various subsidies, which may take the form of real estate, utilities, transportation linkups, tax abatement, etc.[218] These incentives may be necessary to supplement whatever comparative advantages a particular country may have.

V. CONCLUSION

One need not get overwrought for the sake of developing countries under TRIPS and patent TRIPS in particular. On balance, membership in GATT may be to their advantage if they have any capacity for foreign trade. LDCs do not, almost by definition, have the technological capacity to replicate inventions of any sophistication and have limited resources to provide a market for such inventions. Developing countries on the way to industrialization and NICs in particular can cope with patent TRIPS. After all, they have taken advantage of a "head start" during their "piratical" period not unlike the United States and Japan during corresponding periods of their industrialization. Moreover, countries with such a technological capability may be expected to acquire any needed intellectual property rights and know-how from enterprises in developing countries that find it economically advantageous to license rather than export. Also one would have been naive to assume, even with the complete domestic implementation of patent TRIPS, that there will be particularly zealous enforcement against local enterprises at the instance of foreign patent owners or the government itself.

Nor should one be too sanguine about the economic benefit accruing to developed countries and their enterprises from patent TRIPS. Consumers are only worth their salt if they have disposable income. Unless patent TRIPS somehow aids the industrialization of developing countries and leads to their ability to purchase foreign inventions, patent TRIPS may do little to expand foreign trade.

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218. *See* Mary Jo Waits & Rick Heffernon, *Business Incentives: How to Get What the Public Pays for*, 67 SPECTRUM: J. STATE GOVT. 34 (1994) (listing safeguards in granting incentives); Charles Mathesian, *Romancing the Smoke Stack*, CONGR. Q. (1994) (indicating the rising cost per job created—Nissan plant in Tennessee—$11,000 per job (early 1980s); Saturn plant in Tennessee—$26,000 per job (1985); Mercedes-Benz plant in Alabama—$200,000 per job (1993)). Not to be outdone, for a Dofasco Steel plant in Kentucky, the incentives amounted to $350,000 per job.

Finally, one may be suspect of international trade policy advanced by the governments of developed countries but initiated and driven by industry groups even to the extent of special interest protection for preeminent members of such groups. This may not amount to "gun boat" diplomacy, but it does smack of economic imperialism against uppity "pirate" states who deign to compete by "imitation," which, if not "the very lifeblood of a competitive economy,"[219] is at least an aspect of economic completion. In any event, one can hope that the world has now been made safe for intellectual property.

219. Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 146 (1989). *See supra* note 78 (quoting more fully from the *Bonito Boats* case).