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Editor's Preface

Court decisions, legislative activities, and the rules and regulations that result, as well as economic conditions and public opinion, are all factors that affect university technology transfer. In this 2003 edition of the *AUTM Journal*, we present articles that address these factors and their effects, as well as an innovative proposal for pooling patents among universities.

Howard Bremer, J.D., who has long been associated with the Wisconsin Alumni Research Foundation and who is one of the founding fathers of university technology transfer, provides a brief foreword to the two articles that discuss the recent *Madey v. Duke University* decision and the sovereign immunity defense to patent infringement. As Bremer points out, the implications of court decisions such as *Madey v. Duke* are far-reaching and potentially problematic.

Furthermore, while sovereign immunity currently is a defense that state universities may assert, legislation under consideration could remove this defense with devastating effects upon technology transfer conducted at state universities.

In his article, "Immunizing University Research from Patent Infringement: The Implications of *Madey v. Duke University*," Eric W. Guttag, J.D., an attorney with Hasse Guttag & Nesbitt LLC, discusses the decision in *Madey v. Duke* and assesses its impact upon university technology transfer. Guttag suggests that the nonprofit sector may have had misconceptions regarding the strength and breadth of the experimental use defense and that the decision reached in *Madey v. Duke* is not a radical departure from prior law. Guttag also suggests other potential options for immunity from patent infringement that universities may wish to consider. Among the defenses suggested is that state universities invoke the sovereign immunity accorded to states under the Eleventh Amendment to the Constitution.

"State Sovereign Immunity and Technology Transfer," written by Clark C. Shores, J.D., Ph.D., an assistant attorney general at the University of Washington, discusses this defense against patent infringement. The author begins by stating, "In June 1999, the United States Supreme Court issued two decisions effectively establishing that states are immune under the

Eleventh Amendment of the Constitution from suits in federal court for monetary damages for intellectual property infringement. These two decisions . . . have prompted several bills in Congress aimed at restoring state intellectual property liability. Two such bills are currently pending."

Shores goes on to review the background of sovereign immunity, discuss court decisions, and evaluate the potential effect of these pending bills, which would require states to waive their immunity as a precondition to being able to fully enforce their own intellectual property rights. As does Bremer in his introductory commentary, Shores warns that, if enacted, this legislation will have a significant impact on technology transfer.

Naoko Ohashi, J.D., a recent graduate of Franklin Pierce Law Center and currently an attorney with Greenblum & Bernstein, discusses an issue that often vexes the university technology transfer professional in "The University Inventor's Obligation to Assign: A Review of U.S. Case Law on the Enforceability of University Patent Policies." Weaving together a presentation of relevant cases and a thoughtful analysis of the decisions reached by the courts, Ohashi concludes that universities should take "extraordinary precautions to strive for clarity in obligation to assign for faculty, staff, and students."

Moving from some of the more legalistic aspects of university technology transfer to the transactional activities that bring technology into the marketplace, an article by Randall Parish and Reiner Jargosch of the Science & Technology Corp. at the University of New Mexico presents a provocative proposal for patent pooling. In "Using the Industry Model to Create Physical Science Patent Pools among Academic Institutions," Parish and Jargosch discuss the advantages of patent pooling, describe an illustrative university patent pool, and then offer suggestions for overcoming the typical obstacles to such an endeavor.

The authors make a strong case for pooling physical science intellectual property and provide a basic guide to developing pools among universities. They also conclude that, while the constraints under which university technology transfer offices operate are substantial, the benefits that will accrue from entering into a patent pool agreement are likely to be worth the effort involved.

In "Public Relations and Technology Transfer Offices: An Assessment of Media and Government Relations," James M. Haney, Ph.D., of the

University of Wisconsin at Stevens Point and Andrew Cohn of the Wisconsin Alumni Research Foundation explore the importance of public relations strategies for technology transfer offices. Their article reports the results of a nationwide survey of technology transfer managers on how they handle public relations in their offices and presents recommendations based upon the results of this survey.

We believe that you will find this edition of the *AUTM Journal* useful and informative. Planning for the 2004 *AUTM Journal* is already under way, and a call for abstracts will soon be forthcoming. The *AUTM Journal's* editors and Editorial Advisory Board appreciate and solicit suggestions and comments regarding the *AUTM Journal*. Please send your comments to us via e-mail at autm@autm.net.

Thank you.

— Leona C. Fitzmaurice, Ph.D.
Editor

Foreword

The following two articles, namely:"Immunizing University Research from Patent Infringement: The Implications of *Madey v. Duke University*" by Eric W. Guttag, J.D., and "State Sovereign Immunity and Technology Transfer" by Clark C. Shores, J.D., Ph.D., address two developments that have the potential to severely impact the technology transfer functions and efforts in the university sector.

The *Madey v. Duke* decision of the Court of Appeals for the Federal Circuit is a re-affirmation of the narrow construction accorded the experimental-use exception to infringement in the United States. The fact that the "experimental" use is for noncommercial purposes was considered irrelevant by the court since it was construed to "….. further the institution's business objectives, including educating and enlightening students and faculty participating in these projects." (The court's statement that a university includes education and research activities among its *business* objectives is unfortunate because this language is likely to be precedential in nature.) Guttag suggests that one possibility for state universities to immunize themselves against infringement suits is to invoke the sovereign immunity accorded states under the Eleventh Amendment to the Constitution, which provides that the sovereign (the state) cannot be sued in its own courts or in any other court without its consent and permission.

This suggestion leads directly into the paper by Shores dealing with state sovereign immunity.

Because the Eleventh Amendment defense involves a question of state's rights, it would be available only to state institutions. This immediately presents a dichotomy in the total university community since that defense is not available to private or other nonstate institutions conducting research.

The crux of the sovereign immunity issue lies in the introduction of Senate bill S. 1191 on June 5, 2003. The thrust of the bill, driven by the content (e.g., the recording and software) industries, is that, if states will not voluntarily waive their rights to invoke the sovereign immunity defense to patent, trademark, or copyright infringement, they will be precluded from enforcing their intellectual property rights and banned from collecting damages for infringement. One of the fundamental questions is whether the bill

is coercive in its structure to the waiver of sovereign immunity. Another question arises as to whether it is a collateral attack on the Bayh-Dole Act insofar as patenting of intellectual property is concerned.

If the bill passes in its present form, sovereign immunity as an experimental use defense offers little value.

Both issues will be developed further since the *Madey v. Duke* case is on remand to the district court (although the fundamental position of the court of appeals is not likely to be affected), and the legislation will be further considered in due course.

There is a point applicable to *Madey v. Duke* that was never made in the amicus briefs of either the university or the United States that might have formed a basis for support of a broader experimental use exception. The court and some of the earlier precedental cases identify as exceptions to infringement those experimental uses that are "solely for amusement to satisfy idle curiosity or for strictly philosophical inquiry."

In the United States, the bulk of basic research is supported by federal funding that is obtained through a competitive, peer-review grant-award process. What may have been overlooked is that the research is driven by the curiosity of the individual—that is, the curiosity to examine a particular area of science of interest to the particular individual.

Whether this is the "idle" curiosity referred to in the above quotation may be problematic, but a case certainly can be made that the research is driven by the curiosity of the individual. This comports with the view expressed by Vannevar Bush in 1945 in his Report to the President, *Science: The Endless Frontier*, to the effect that: "Scientific progress is essential to national welfare and derives from the free interplay of free intellects working on subjects of their own choice in a manner directed by their curiosity."

Thus, perhaps, that fact could form the basis for a broader experimental use exception.

— Howard Bremer, J.D., Wisconsin Alumni Research Foundation

Immunizing University Research from Patent Infringement: The Implications of *Madey v. Duke University*

Eric W. Guttag, J.D.

Introduction

Until recently, many universities undoubtedly believed their research programs were relatively free of patent-infringement risk. If academic research was for the purpose of educating and enlightening students and faculty, how could it be treated as patent infringement? Could not academia simply rely on the established experimental use defense[1] as a universal safe harbor for all research of a noncommercial nature?

Unfortunately, universities have now learned that the experimental use defense is not as broad or reliable as they once thought. In *Madey v. Duke University*,[2] a three-judge panel of the U.S. Court of Appeals for the Federal Circuit overturned a ruling by the district court in favor of Duke University based on the experimental use defense. In doing so, the Federal Circuit rudely awakened universities to the fact that even research for noncommercial purposes has patent-infringement risks.

The implications of the *Madey* case have caused much consternation to universities, especially those with significant research programs. The general belief is that the *Madey* case has so narrowly defined the experimental use defense that universities can no longer reasonably or safely rely on it. Indeed, the university community sought, ultimately unsuccessfully, to have the Supreme Court review the Federal Circuit's decision in the *Madey* case.[3]

Universities have argued that the Federal Circuit's holding in the *Madey* case represents a radical departure from prior cases on the scope of the experimental use defense. Indeed, the universities further argued that reversal of the Federal Circuit's holding was critical to keep academic research from being unduly impeded by the threat of patent infringement. That may

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not be true. While the Supreme Court did not agree to review the Federal Circuit's decision in the *Madey* case, all may not be lost.

This article will first explore the origins and development of the experimental use defense. The focus will be on how the Federal Circuit and its predecessor court, the U.S. Court of Claims, have treated the experimental use defense, and whether the Federal Circuit's holding in *Madey* radically departs from prior law.[4] This article will then review other potential options for immunity from patent infringement that universities might also consider. These other options may lessen the need for a more encompassing experimental use defense for noncommercial academic research, especially when the limitations of and problems created by this defense are factored into the equation.

The Origin and Development of the Experimental Use Defense

It is widely recognized that the experimental use defense originated in two cases authored by Justice Joseph Story in 1813. In *Whittemore v. Cutter*,[5] Amos Whittemore sued William F. Cutter for infringement of his patent on a machine to make cotton and woolen cards. In response to Cutter's objection that making these machines without using them was not infringement, Justice Story observed: "It could never have been the intention of the legislature to punish a man, who constructed such a machine merely for philosophical experiments, or for the purpose of ascertaining the sufficiency of the machine to produce its described effects."[6]

Even after making this observation, Justice Story still found Cutter to have infringed the patent.

The other case is *Sawin v. Guild*.[7] In determining whether the sale by the defendant of materials for making the patented machine was infringement, Justice Story cited to the earlier case of *Whittemore v. Cutter* and said: "This court has already had occasion to consider the clause in question, and upon mature deliberation, it has held that the making of a patented machine to be an offence within the purview of it, must be the making with an intent to use for profit, and not for the mere purpose of philosophical experiment, or to ascertain the verity and exactness of the specification."[8]

However, Justice Story determined that the defendant had not infringed the patent on a ground other than the experimental use defense: to be

infringing, the sale had to be of the assembled machine, not simply the materials for making that machine.

Whittemore v. Cutter and *Sawin v. Guild* established two prongs or branches for this experimental use defense.[9] The first, called the *ascertain validity branch*, holds that one is entitled to make the patented invention to test the validity of the patent. While it is said there is little case law on it, there is also a consensus that the ascertain validity branch remains viable as a defense to patent infringement.[10]

The other, called the *philosophical experiment branch*, is typically applied in those situations in which the alleged infringement is of a non-commercial nature. This branch is based on Justice Story's quoted statement above in *Sawin v. Guild* about making the invention "with an intent to use for profit." This branch of the experimental use defense has also been the most developed in the case law, although not always with consistency or clarity.[11]

The only reported instance in which the experimental use defense was applied to an academic institution was in the 1936 case of *Ruth v. Stearns-Roger Manufacturing Co.*[12] The District Court of Colorado ruled that parts used by the Colorado School of Mines (CSM) in allegedly infringing floatation machines were "for experimental purposes, and consequently did not contribute to an infringing use." However, the status of the CSM as an academic institution does not seem to have mattered to the District Court of Colorado in ruling that the experimental use defense applied.

How the U.S. Court of Claims and the Federal Circuit Have Treated the Experimental Use Defense: Does *Madey v. Duke University* Represent a Radical Departure from Prior Law?

Perhaps the most extensive and important review of the experimental use defense has occurred in the U.S. Court of Claims. The Federal Circuit has frequently referred to language in the Court of Claims' cases when considering this defense. This is not surprising because the Federal Circuit established early that the legal precedent of its predecessor courts, including the Court of Claims, was to be considered controlling.[13]

In the 1936 case of *Ordnance Engineering Corp. v. United States*,[14] the Court of Claims supposedly applied the experimental use defense for the first time. This case never actually refers to the experimental use defense,

nor to any of the prior case law involving this defense. Instead, the defense is invoked by implication: the Court of Claims held that numerous shells built for "test firing and for experimental purposes" were to be excluded from the accounting.

More than twenty years after *Ordnance Engineering*, the Court of Claims explicitly dealt with the experimental use defense. In *Chesterfield v. United States*,[15] a patent on cobalt- and nickel-containing alloys was allegedly infringed by certain metal alloys, including one identified as 422-19. The Court of Claims ruled that the 422-19 alloy did not infringe this patent for the following reason: "The evidence shows that a portion of the 422-19 alloy procured by the defendant was used only for testing and for experimental purposes, and there is no evidence that the remainder was used other than experimentally. Experimental use does not infringe."[16]

Almost twenty years after *Chesterfield*, the Court of Claims revisited the experimental use defense. In *Douglas v. United States*,[17] a patent on jet propulsion technology was allegedly infringed by six British airplanes and eleven replacement engines that were imported into the United States. In arguing against liability for infringing this patent under 28 U.S.C. §1498(a), the federal government said the use of the airplanes and the engines was experimental. After reviewing the history of the experimental use defense, the Court of Claims rejected this argument: "These programs [i.e., those involving the planes and engines] were consistent with the assigned mission or statutory authority of each department or agency. At no time were the accused devices used for amusement, to satisfy idle curiosity, or for philosophical inquiry; to the contrary, each use was in keeping with the legitimate business of the using agency and served a valuable governmental and public purpose. Having employed a number of the accused devices in a systematic program, extending over a prolonged period, to serve the legitimate interests of a number of services agencies, there is no basis under 28 U.S.C §1498 for excusing that use as merely experimental."[18]

Two years after *Douglas*, the Court of Claims again reflected on the experimental use defense in the key case of *Pitcairn v. United States.*[19] The main contested issue in *Pitcairn* was what constituted "reasonable and entire compensation" under 28 U.S.C. §1498(a). This led to a challenge by the federal government that such compensation should exclude the use of certain infringing helicopters because it was for "testing and experimental

purposes." The Court of Claims did not agree: "Obviously every new helicopter must be tested for lifting ability, for the effect of vibration on installed equipment, flight speed and range, engine efficiency, and numerous other factors. Tests, demonstrations, and experiments of such nature are intended uses of the infringing aircraft manufactured for the defendant and are in keeping with the legitimate business of the using agency. Experimental use is not a defense in the present litigation."[20]

The last and unsuccessful invocation of the experimental use defense in the Court of Claims was *Deuterium Corp. v. United States*.[21] In *Deuterium*, the predecessor of the Department of Energy contracted with a private company (EIC) to test and evaluate a system for removing hydrogen sulfide from geothermal steam. In a subsequent patent-infringement action, the DOE tried to escape liability for the allegedly infringing activities of EIC through the experimental use defense. Judge Randall Rader, later to become a member of the Federal Circuit, was not impressed: "The weight of the objective evidence in the case at bar shows that DOE's participation was not strictly intellectual experimentation, but development of technology and processes from commercial applications. At the EIC pilot plant, DOE engaged in a demonstration project, not mere experimentation. Moreover the objective of the demonstration project was to develop an economically feasible commercial application of the '506 patent."[22]

Other than the earlier cases of *Ordnance Engineering* and *Chesterfield*, the Court of Claims showed little willingness to uphold the experimental use defense. This reluctance is also evident in the three Federal Circuit decisions, including *Madey*, that have dealt with the experimental use defense and have repeatedly borrowed the restrictive language from the later Court of Claims' cases, especially *Pitcairn*.

The first of these was *Roche Products Inc. v. Bolar Pharmaceutical Co.*[23] The primary issue in *Roche* was whether testing of a patented drug by a generic drug company (Bolar) solely for the purpose of securing regulatory review from the Food and Drug Administration was infringing. In denying Roche's request to enjoin Bolar activities, the district court held that use of a patented compound for federally mandated testing was not infringing because such use was "*de minimis* and experimental."

The Federal Circuit disagreed, stating that 35 U.S.C. §271(a) "prohibits, on its face, any and all uses of a patented invention."[24] The Federal

Circuit found Bolar's concession that its intended use of the patented drug fell outside the "traditional limits" of experimental use defense to be "fatal." In holding that this defense did not apply to Bolar's activities, the Federal Circuit also signaled that it was unlikely to find it applicable in the future cases: "We hold the experimental use defense to be truly narrow, and will not expand it under the present circumstances."[25]

For future infringers contemplating reliance on the experimental use defense, the *Roche* case was not a promising start. The Federal Circuit did nothing to raise infringers' hopes sixteen years later in *Embrex, Inc. v. Service Engineering Corp.*[26] Embrex was the exclusive licensee of a patent (the '630 patent) from the United States. The '630 patent claimed methods for inoculating birds against disease by injecting vaccines into a specified region of the egg before hatching, thus immunizing the chickens *in ovo*, i.e., while they were still in the egg.

Thus began the stormy relationship between Embrex and Service Engineering Corp. (SEC) over the '630 patent. SEC expressed interest in manufacturing Embrex's *in ovo* injection machines, only to be rebuffed by Embrex. Embrex later sued SEC and two other collaborating companies who tried unsuccessfully to design around the patented method, eventually leading to a settlement of that lawsuit.

Undaunted, SEC then developed a new prototype *in ovo* injection machine and engaged two scientists to see if they could target injections into the chorioallantoic sac (CAS), a part of the egg not mentioned in the patented method. Unfortunately, several tests showed that the injected embryos received little immunity and that most injections penetrated beyond the CAS and into the amnion/yolk sac, areas covered by the patented method.

Upon learning of SEC's new testing and attempts to again market an *in ovo* injection machine, Embrex sued SEC again for willfully infringing the '630 patent. When SEC lost at trial, it appealed, arguing that the CAS tests did not infringe the '630 patent because they were scientific experiments, did not result in the sale of any machines, and were, therefore, "merely *de minimis*, or exempt under the experimental use exception." The Federal Circuit rejected this argument, noting that, in *Roche*, it had construed the experimental use and *de minimis* exceptions "very narrowly." While SEC tried to cloak the CAS tests "in the guise of scientific inquiry," the Federal Circuit was not convinced because it had been determined at trial that "SEC

performed the [CAS] tests expressly for commercial purposes," including demonstrating "to its potential customers the usefulness of the methods performed by its *in ovo* injection machines."[27]

SEC got an even less sympathetic ear from Judge Rader, who wrote a concurring opinion. As far as Judge Rader was concerned, the experimental use and "*de minimis*" exceptions simply did not exist, at least not anymore: "In my judgment, the Patent Act leaves no room for any '*de minimis*' or experimental use excuses for infringement. Because the Patent Act confers the right to preclude 'use,' not 'substantial use,' no room remains in the law for a '*de minimis*' excuse. Similarly, because intent is irrelevant to patent infringement, an experimental use excuse cannot survive."[28]

Madey v. Duke University followed this very negative and narrowing view of the experimental use defense in the *Roche* and *Embrex* cases. John Madey, Ph.D., was recruited from Stanford University to take a tenured position in the physics department at Duke University in 1989. Madey also moved his free electron laser (FEL) research lab from Stanford, requiring Duke to build an addition to its physics building to house this lab. During his time at Stanford, Madey also got sole ownership of two patents that covered the equipment in the FEL lab.

In 1997, Madey was removed as director of the FEL lab because of a dispute that arose between him and Duke. As a result of his removal as director, Madey resigned from Duke in 1998, but Duke continued to operate some of the equipment in the lab. Madey then sued Duke for patent infringement, alleging that three devices housed in Duke's physics facility were covered by one or both of his patents.

Duke moved for summary judgment, arguing that any use of these three devices was subject to the experimental use defense. The district court agreed and granted summary judgment in favor of Duke. The district court acknowledged that this defense applied to uses "solely for research, academic, or experimental purposes," citing the *Deuterium and Whittemore v. Cutter* cases. The district court also recognized "the debate over the scope of the experimental use defense," but cited the *Embrex* case as holding that this defense was "viable for experimental nonprofit purposes."

The district court then placed the burden on Madey to show that Duke had not used the infringing equipment "solely for an experimental or other nonprofit purpose" and more specifically for a "definite, cognizable, and

not insubstantial commercial purpose," citing the *Roche* case. Based on Duke's patent policy, Madey replied that Duke was in the business of "obtaining grants and developing possible commercial applications for the fruits of its academic research" so that the experimental use defense did not apply. However, the district court relied on another statement in that policy to refute Madey's contention that Duke was in the business of developing technology for commercial applications. The district court thus ruled that Madey had not satisfied his burden of proof.

On appeal, the Federal Circuit observed that its prior precedent "continued to recognize the judicially created experimental use defense, however, in a very limited form." Even so, the Federal Circuit agreed with Madey that the district court's application of this defense was overly broad. Specifically, the Federal Circuit found the district court's characterization of the experimental use defense to be "in sharp contrast to our admonitions in *Embrex* and *Roche* that the experimental use defense is very narrow and strictly limited."[29] Relying on and quoting from *Roche*, the Federal Circuit stated that use undertaken in the "guise of scientific inquiry" does not qualify for the defense if it has "definite, cognizable, and not insubstantial commercial purposes." Relying on *Pitcairn*, the Federal Circuit also stated that "use in keeping with the legitimate business of the alleged infringer does not qualify for the experimental use defense."

The Federal Circuit also considered and rejected the district court's primary legal precedent for ruling in Duke's favor on the experimental use defense, namely the *Ruth v. Stearns-Roger Manufacturing* case. Instead, the Federal Circuit held that "our precedent does not immunize any conduct that is in keeping with the alleged infringer's legitimate business, regardless of commercial implications." The Federal Circuit found the research projects carried out by Duke to "unmistakably further the institution's legitimate business objectives, including educating and enlightening students and faculty participating in these projects." It did not matter that the "particular institution or entity is engaged in an endeavor for commercial gain, so long as the act is in furtherance of the alleged infringer's legitimate business and is not solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry." As far as the Federal Circuit was concerned, the profit or nonprofit status of Duke's research was irrelevant to whether the experimental use defense applied.

Did the Federal Circuit's ruling in *Madey* represent, as some have said, a radical departure from prior law?[30] If *Roche* and *Embrex* are to be believed, as well as other cases, such as *Pitcairn*, from the predecessor Court of Claims, the answer is an emphatic *no*. To the contrary, the Federal Circuit has said over and over again that the experimental use defense is very narrow. If anything, the Federal Circuit has been extremely consistent in never ruling in favor of an alleged infringer based on this defense. Accordingly, the argument that *Madey* represents a radical departure from prior law on the experimental use defense does not hold up under scrutiny.

Other Ways to Immunize University Research from Patent Infringement

While the Federal Circuit after the *Madey* case may have left the experimental use defense with little remaining value, universities are not without other viable options for immunizing their academic research from patent infringement. Indeed, there are at least three potential safe harbors that universities can and should consider: (1) immunity under the Eleventh Amendment, (2) immunity under the Hatch-Waxman Act, and (3) immunity under the federal contractor's defense of 28 U.S.C. §1498(a). The advantages and disadvantages of these potential safe harbors are explored below.

The Eleventh Amendment

Much of the academic research in the United States is carried out at state universities. That brings into play a powerful defense against patent infringement for such academic research, namely sovereign immunity under the Eleventh Amendment.[31] Indeed, sovereign immunity under the Eleventh Amendment does not even require that the academic research be for noncommercial purposes, a key requirement for the experimental use defense to apply.

In 1999, the Supreme Court in *Florida Prepaid Postsecondary Education Expense Board v. College Savings Bank*[32] ruled by a slim five-to-four majority that Congress had not properly abrogated the states' sovereign immunity against patent-infringement suits under the Eleventh Amendment. With sovereign immunity under the Eleventh Amendment, state universities[33] can be fairly confident that their academic research, whether for commercial or noncommercial purposes, is secure against patent-infringement suits in federal district court. This assumes the state

university's research is not entangled with some other private connection, for example, corporate sponsorship, that might result in the loss of sovereign immunity. State universities will also need to guard against certain instances where their voluntary participation in a federal lawsuit could lead to a waiver of sovereign immunity under the Eleventh Amendment against a patent-infringement claim.[34] For example, waiver could occur in disputes between the state university and its faculty over who owns the patent rights in the particular academic research.[35]

The Hatch-Waxman Act

While state universities can rely on sovereign immunity under the Eleventh Amendment, that still leaves private universities, such as Duke, looking for available safe harbors against patent infringement for their research. One possibility is the Drug Price Competition and Patent Term Restoration Act, usually referred to as the Hatch-Waxman Act.[36]

The Hatch-Waxman Act was Congress' response to the Federal Circuit's holding in *Roche* that testing of a patented drug solely for securing regulatory review from the FDA was actionable infringement. The Hatch-Waxman Act overruled this holding in *Roche*, and, thus, provided immunity from suit if the testing of the patented invention was for the purpose of securing regulatory approval from the FDA.[37] When the Supreme Court in *Eli Lilly & Co. v. Medtronic Inc.*[38] held that the Hatch-Waxman Act also applied to patented medical devices, not just patented drugs as originally believed, this immunity became applicable to the testing of any patented invention (e.g., food additives or cosmetics) for the purpose of securing regulatory approval from the FDA.

While the Hatch-Waxman Act does immunize activity related to securing regulatory approval from the FDA from patent infringement, it is still a relatively narrow defense. Unless the academic research of the private university has, as at least one of its objectives, the securing of such regulatory approval, there is no safe harbor under the Hatch-Waxman Act. Indeed, in *Integra Lifesciences I Ltd. v. Merck KgaA*,[39] the Federal Circuit has recently ruled that the safe harbor provisions of the Hatch-Waxman Act do not apply to preclinical research, even if it "may rationally form a predicate for future FDA clinical tests." This could make the Hatch-Waxman Act of minimal

value for immunizing academic research by private universities from patent infringement.

Federal Contractor Immunity under 28 U.S.C. §1498(a)

One potential safe harbor that was tantalizing raised but left unresolved by the *Madey* case is whether federally sponsored university research is immunized from patent infringement under 28 U.S.C. §1498(a).[40] Basically, 28 U.S.C. §1498(a) provides that the only remedy for patent infringement by the United States is reasonable compensation (i.e., the infringing activity cannot be enjoined) and only by suit in the Court of Claims. It also provides complete immunity for federal contractors who undertake such allegedly infringing activity for the United States and is, thus, referred to hereafter as the *federal contractor's defense*. [41]

In the *Madey* case, the applicability of 28 U.S.C. §1498(a) was raised when Duke filed a motion to dismiss the patent-infringement action for lack of subject-matter jurisdiction. In reviewing this motion, the district court had to decide whether Duke's alleged infringing use of Madey's patents was in furtherance of an Office of Naval Research grant or beyond its authorized scope. The district court reasoned that Duke's use was within the scope of the ONR grant and that, based on 28 U.S.C. §1498(a), Madey should have sued in the Court of Claims. Accordingly, the district court granted Duke's motion to dismiss.

On appeal, the Federal Circuit was particularly troubled by the district court's failure to "clearly identify, discuss, or analyze the particular statements or aspects of the ONR grant that may have provided the government's authorization or consent to be sued."[42] Accordingly, the Federal Circuit agreed with *Madey* that the district court improperly applied 28 U.S.C § 1498(a) by failing to make sufficient supporting findings of fact. However, the Federal Circuit also disagreed with *Madey* that a research grant could never meet the requirements of 28 U.S.C. §1498(a).

For private universities, the ability to rely on 28 U.S.C. §1498(a) as a safe harbor for their academic research could be a golden opportunity. Federal funding, typically in the form of research grants, is often used to support research at private universities. Also, like sovereign immunity for state universities under the Eleventh Amendment, the federal contractor's defense does not require the research carried out at the private university be

for noncommercial purposes. Put differently, federally funded research carried out at private universities for commercial purposes could be protected against patent infringement by 28 U.S.C. §1498(a).

The problem with this potential safe harbor is that the Federal Circuit in *Madey* has only vaguely defined what the scope and requirements would be for a university to come under the protective umbrella of the federal contractor's defense. From what was briefly said in *Madey* on what is required, it is doubtful the Federal Circuit will apply this defense to every instance of federally funded research carried out at a university. Instead, the Federal Circuit suggests that the terms of the research grant from the respective federal agency will control and will be scrutinized to see if the university's research "is by or for the United States" and has the "authorization and consent" of the federal government. That will make this defense more difficult for private universities to rely on until the courts, especially the Federal Circuit, define its scope and requirements. Hopefully, the *Madey* case will provide that opportunity when it is returned to the district court for further proceedings and possible subsequent review by the Federal Circuit.

An important issue regarding the scope of this potential defense is, Who can rely on it? For example, can potential licensees of this federally sponsored university research come under its protective umbrella? If the answer to this question is yes, the federal contractor's defense could be even more valuable for private universities. The language in 28 U.S.C. §1498(a) might support such an expansive reading because it mentions immunity not only for contractors but also for subcontractors. Whether the courts, and especially the Federal Circuit, will give 28 U.S.C. §1498(a) this expansive reading remains to be seen. Such an expansive reading might cure a known weakness in the experimental use defense, namely when industry licenses this university research.[43] All that can be said is that this expansive reading may be tested in a future court case.

Conclusion: Is the Experimental Use Defense Really Needed to Immunize University Research from Patent Infringement?

It has been argued that the Federal Circuit's ruling in the *Madey* case limiting the scope of the experimental use defense "will have a significant and chilling effect on academic scientific research, especially in biotechnology

and biomedicine."[44] This is also not a new argument. Over the years, many commentators expressed the same view, with some even criticizing the patent system for restricting the scope of this defense.[45]

Even so, this author must ask, Why is the experimental use defense so critical to preventing academic research from being impeded? For example, it has also been argued that proliferating patent coverage on various technologies, especially biotechnology, would impede the progress and development of such technologies. Yet the filing for patents on new biotechnology inventions remains significantly high. Those conducting the research to support the patenting of this new biotechnology, and that includes many universities, see no apparent impediment to their research efforts.

The experimental use defense also creates other problems that the proponents thereof have not taken into account. An obvious one is the effect on the legitimate rights of the patent owner. No matter how it is characterized, the experimental use defense is, in essence, a compulsory license.[46] Worse yet, it is a compulsory license that is imposed without any royalty or other compensation for the patent owner whose rights are being infringed. Even the federal government has recognized the need to compensate patent owners for the use of their patented inventions by enacting 28 U.S.C. §1498(a).

Many commentators have suggested that the experimental use defense could be made more palatable by providing appropriate compensation to the patent owner and should even be made statutory.[47] However, unlike what happened with the Hatch-Waxman Act, this may not be a promising avenue because prior legislative efforts to make this or a similar defense statutory have failed.[48] Instead, it might better to treat federally sponsored research carried out at these universities as being protected by the federal contractor's defense of 28 U.S.C. §1498(a). At least the patent owner would be compensated for use of its patented invention, and that compensation could be determined with consistency and certainty based on the abundant case law that has interpreted what "reasonable and entire compensation" means under 28 U.S.C. §1498(a).[49]

Even if the experimental use defense had been held to cover all noncommercial academic research, that would still leave the universities looking for potential safe harbors to protect what is undoubtedly their more lucrative, commercial research. State universities currently have a readily available safe harbor for such research in sovereign immunity under the

Eleventh Amendment. Private universities can also look for safe harbor in the Hatch-Waxman Act for drug and medical device research, as well as a potentially more expansive safe harbor in the federal contractor's defense of 28 U.S.C. §1498(a). Instead of fighting for limited immunity from patent infringement under the experimental use defense, the universities, state and private, should see the *Madey* case as a wake-up call to consider better and potentially even more valuable safe harbors for their academic research, be it for commercial or noncommercial purposes.

What is also ironic is that Duke might have been able to avoid relying on the experimental use defense, as well as the other alleged bases for avoiding liability relative to Madey's patents, by using another device: contract. For example, as a condition of his tenure and for the cost of expanding its physic building to house the FEL lab, Duke could have requested a royalty-free license under the Madey patents. However, that does not appear to have happened, or to even have been considered by Duke.[50]

Notes

[1] The courts and commentators have referred to the experimental use defense variously and interchangeably as a *defense*, *exception*, or *exemption*. See also L. Bruzzone, "The Research Exemption: A Proposal," 21 *AIPLA Q. J.* 52, 53 (1993) (calling it the *research exemption*). The experimental use defense should also not be confused with another patent doctrine sometimes referred to by the same or similar name that treats the activities of the inventor in developing and improving his or her invention as not creating a public-use statutory bar to filing for a patent. See 35 U.S.C. §102(b) (2001); see also E. Barash, "Experimental Uses, Patents, and Scientific Progress," 92 *NW. U. L. Rev.* 667 (1997) (discussing the development of these two differing doctrines with similar names).

[2] 307 3d. 1351, 64 U.S.P.Q.2d (BNA) 1737 (Fed. Cir. 2002), *cert. denied*, ___ U.S. ___ (2003).

[3] See, e.g., Amicus Brief of American Medical Colleges et al at 2, filed January 2003 on behalf of many universities, as well as AUTM, requesting review by the Supreme Court of the Federal Circuit's decision in *Madey v. Duke University* (referred to hereafter as the "American Medical Colleges Brief").

[4] Id. at 4.

[5] 29 F. Cas. 1120 (C.C.D. Mass. 1813).

[6] Id. at 1121.

[7] 21 F. Cas. 554 (C.C.D. Mass. 1813).

[8] 21 F. Cas. at 555.

[9] See, e.g., R. Hantman, "Experimental Use as an Exception to Patent Infringement," 67 *J. Pat. & Trademark Off. Soc'y* 617, 620 (1985). Another variant, called the *de minimis use exception*, has been applied to those situations where the degree of infringement is so insignificant as to be trifling. See M. Walters, "De Minimis Use and Experimental Use Exceptions to Patent Infringement: A Comment on the Embrex Concurrence," 29 *AIPLA Q. J.* 509, 510-11, 15 (Fall 2001).

[10] S. Michel, "The Experimental Use Exception to Infringement Applied to Federally Funded Inventions," 7 *High Tech L. J.* 369, 372 (1992); see also R. Eisenberg, "Patents and the Progress of Science: Exclusive Rights and Experimental Use," 65 U. *Chicago L. R.* 1017, 1074 (1989) (strongest case for experimental use exception).

[11] Hantman, supra note 9 at 625-30 and cases cited therein; see also Michel, supra note 10 at 372 (scope of philosophical experiment prong much less clear); I. Feit, "Biotechnology Research and the Experimental Use Exception to Patent Infringement," 71 J. *Pat. & Trademark Off. Soc'y* 819, 836 (1989) ("Hantman is in good company in being unable to articulate a satisfactory theoretical basis for the experimental use exception to infringement.").

[12] 13 F. Supp. 697 (D. Colo. 1935), *rev'd on other grounds*, 87 F.2d 35 (10th Cir. 1936).

[13] *South Corp. v. United States*, 690 F.2d 1368, 1370-71, 215 U.S.P.Q. (BNA) 657, 658-59 (Fed. Cir. 1982) (en banc).

[14] 84 Ct.Cl. 1, 32 U.S.P.Q. (BNA) 614 (Ct. Cl. 1936), *cert denied*, 302 U.S. 703 (1937).

[15] 159 F. Supp. 371, 116 U.S.P.Q. (BNA) 445 (Ct. Cl. 1958).

[16] 159 F. Supp. at 375-76, 116 U.S.P.Q. (BNA) at 448. The Court of Claims also ruled that the patent was invalid, so its comment about experimental use was unnecessary to its decision, i.e., was *dicta*.

[17] 181 U.S.P.Q. (BNA) 170 (Ct. Cl. Trial Division 1974), aff'd, 510 F.2d 364 (Ct. Cl. 1975).

[18] 181 U.S.P.Q. (BNA) at 177. Since the patent was also found by the Court of Claims to be invalid, what they said about the experimental use defense was also mere *dicta*.

[19] 547 F.2d 1106, 192 U.S.P.Q. (BNA) 612 (Ct. Cl. 1976).

[20] 547 F.2d at 1125-26, 192 U.S.P.Q. (BNA) at 625.

[21] 14 U.S.P.Q.2d (BNA) 1636 (Ct. Cl. 1990).

[22] 14 U.S.P.Q.2d (BNA) at 1644. Judge Rader had also ruled that the heat exchanger used by EIC in this pilot plant was not covered by the '506 patent.

[23] 733 F.2d 858, 221 U.S.P.Q. (BNA) 937 (Fed. Cir. 1984).

[24] 35 U.S.C. §271(a) (2001) states: "Except as otherwise provided in this title [i.e., Title 35], whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent."

[25] 733 F.2d at 862, 221 U.S.P.Q. (BNA) at 937.

[26] 216 F.3d 1343, 55 U.S.P.Q.2d (BNA) 1161 (Fed. Cir. 2000).

[27] 216 F.3d at 1349, 55 U.S.P.Q.2d (BNA) at 1165.

[28] 216 F.2d at 1352, 55 U.S.P.Q.2d (BNA) at 1167 (concurring opinion).

[29] 216 F.3d at 1361-62, 64 U.S.P.Q.2d (BNA) at 1746.

[30] See American Medical Colleges Brief, supra note 3 at 4.

[31] See "State Sovereign Immunity and Technology Transfer," by Clark C. Shores, on page 21 for a more extensive discussion of sovereign immunity under the Eleventh Amendment.

[32] 527 U.S. 627, 51 U.S.P.Q.2d (BNA) 1081 (1999). Interestingly, it was assumed that the Florida Prepaid Postsecondary Education Expense Board was "an arm of the State of Florida." See 527 U.S. at 633, 51 U.S.P.Q.2d (BNA) at 1084, n 3.

[33] State universities will qualify for sovereign immunity under the Eleventh Amendment as long as they are considered an arm of the state, and especially if their funding comes from the state. See *Hutsell v. Sayre*, 5 F.3d 996, 999-1000 (6th Cir. 1993), *cert. denied*, 510 U.S. 1119 (1994) (University of Kentucky considered arm of state and funded by state, thus making action claim against state treasury that was barred by Eleventh Amendment); cf. *Baxter v. Vigo Cty. School Corp.*, 26 F.3d 728, 731-733 (7th Cir. 1994) (granting sovereign immunity under Eleventh Amendment to state welfare department but apparently denying it to local county school district as not being a "state agency").

[34] See *State Contr. & Eng'r Corp. v. Florida*, 258 F.3d 1329, 1336, 59 U.S.P.Q.2d (BNA) 1498, 1503 (Fed. Cir. 2000), *cert. denied*, 122 S.Ct. 1072 (2002) (mere appearance of state to defend against patent infringement suit is not "voluntary participation" that waives sovereign immunity under Eleventh Amendment).

[35] Cf. *The Regents of the Univ. of New Mexico v. Knight*, 321 F.3d 1111, 66 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 2003), where the Federal Circuit ruled that the University of New Mexico owned the patent rights in some compounds for treating cancer invented by two professors. The Federal Circuit also ruled that certain counterclaims brought by one of the professors (Knight) were not barred by sovereign immunity under the Eleventh Amendment because of "waiver" by the University of New Mexico in filing suit against Knight in federal district court. If Knight had also counterclaimed for infringing his own patent, and the Federal

Circuit had found that he owned the rights in this patent, the University of New Mexico would likely have been on the receiving end of a viable patent-infringement action.

[36] Now codified variously as 21 U.S.C. §§ 355, 360 (1999 & Supp. 2003) and 35 U.S.C. §§156, 271, 282 (2001).

[37] Now codified as 35 U.S.C. §271(e)(1) (1999), which states in relevant part: "It shall not be an act of infringement to make, use, offer to sell, or sell within the United States or import into the United States a patented invention (other than a new animal drug or veterinary biological product (as those terms are used in the Federal Food, Drug, and Cosmetic Act and the Act of March 4, 1913) which is primarily manufactured using recombinant DNA, recombinant RNA, hybridoma technology, or other processes involving site specific genetic manipulation techniques) solely for uses reasonably related to the development and submission of information under a Federal law which regulates the manufacture, use, or sale of drugs or veterinary biological products."

[38] 496 U.S. 661, 15 U.S.P.Q.2d (BNA) 1121 (1990).

[39] 2003 U.S. App. Lexis 11335 (Fed. Cir. 2003).

[40] 28 U.S.C. §1498(a) (2000) says, in relevant part: "Whenever an invention described in and covered by a patent of the United States *is used or manufactured by or for the United States* without license of the owner thereof or lawful right to use or manufacture the same, the owner's remedy shall be by action against the United States in the United States Court of Federal Claims for the recovery of his reasonable and entire compensation for such use and manufacture…

"For the purposes of this section, the use or manufacture of an invention described in and covered by a patent of the United States *by a contractor, a subcontractor, or any person, firm, or corporation for the Government and with the authorization or consent of the Government, shall be construed as use or manufacture for the United States."* (Emphasis added.)

[41] See J. Welch, "Patent Infringement in Government Procurement: GAO's Role," 51 J. *Pat. Off. Soc'y* 177, 178 (1969), which discusses the history and genesis of 28 U.S.C. §1498(a). See also J. Davis, "Trial of Patent and Copyright Cases in the U.S. Court of Claims," 57 J. *Pat. Off. Soc'y* 253 (1975); J. Colaianni, "Damages in the U.S. Claims Court,"

66 *J. Pat. Off. Soc'y* 3 (1984). As originally enacted, 28 U.S.C. §1498(a) was construed not to protect federal contractors who could thus be enjoined from infringing the patent. *Cramp & Sons v. Curtis Turbine Co.*, 246 U.S. 28 (1918). This led Congress to modify the original act, now codified in the second portion of 28 U.S.C. §1498(a) quoted in note 40 supra. See Welch, supra at 178.

42 307 F.3d at 1359; 64 U.S.P.Q.2d (BNA) at 1744.

43 See Michel, supra note 10 at 384 (industry use taints university research with commercial purpose, thus likely causing it to lose status as experimental use).

44 American Medical Colleges Brief, supra note 3 at 4-5 and 14; see also Barash, supra note 1 at 692 (effect of extensive patent litigation against universities may chill many research activities by requiring researchers to investigate whether proposed laboratory research infringes any known patent).

45 Feit, supra note 11 at 836; see also N. Israelsen, "Making, Using, and Selling without Infringing: An Examination of 35 U.S.C. Section 271(e) and the Experimental Use Exception to Patent Infringement," 16 *AIPLA Q. J.* 457, 474 (1988-89) (arguing that 35 U.S.C §271(e)(1) should be interpreted to permit research uses of inventions).

46 In the United States, compulsory licensing has been permitted by statute only in two instances. See the Atomic Energy Act, now codified as 42 U.S.C. §2183 (1994) (nuclear materials and atomic energy) and the Clean Air Act, now codified as 42 U.S.C. §7608 (1995) (air-pollution prevention and control technologies); see also J. Mueller, "No 'Dilettante Affair': Rethinking the Experimental Use Exception to Patent Infringement for Biomedical Research Tools," *76 Wash L. Rev.* 1, 51, n. 253 (2001) (referring to the use of compulsory licensing to remedy antitrust or patent misuse violations).

47 M. Thayer et al, "The Research Exemption to Patent Infringement: The Time Has Come for Legislation," 4 J. *Biolaw and Bus.* 1, 21 (2000); Bruzzone, supra note 1 at 65-69; Mueller supra note 46 at 54 et seq. (proposing a royalty payment for use of patented research tools, especially in the biotechnology area); Michel, supra note 10 at 397 et. seq. (proposal to make the experimental use defense broadly applicable to university and nonprofit research and all patented, federally funded inventions).

[48] In 1988, Congress proposed a statutory research exemption that died in Senate subcommittee. In 1990, Rep. Robert Kastenmeier introduced another bill to make the experimental use defense statutory; this bill also was not enacted, and Congress has not renewed its effort to make the experimental use defense statutory. See Thayer et al supra note 47 at 21.

[49] See, e.g., *Leesona Corp. v. United States*, 599 F.2d 958, 972-80, 202 U.S.P.Q. 424, 437-43 (Ct. Cl. 1979); *Pitcairn*, supra, 547 F.2d at 1114-1124, 192 U.S.P.Q. (BNA) at 616-24., see also Colaianni, supra note 41.

[50] Cf. *The Regents of the Univ. of New Mexico*, supra, 321 F.3d at 1118-20, 66 U.S.P.Q.2d (BNA) at 1006-1009. The University of New Mexico had one of the defendant faculty members (Scallen) sign an agreement each year that contained the patent policy obligating the faculty to assign the rights to the university, and which the Federal Circuit ruled was binding on that faculty member. The University of New Mexico had to strain a little harder with the other defendant (Knight) who, as a faculty staff member, did not sign such an agreement, but was nonetheless held to be bound by implied contract under this patent policy.

State Sovereign Immunity and Technology Transfer

Clark C. Shores, J.D., Ph.D.

Introduction

In June 1999, the United States Supreme Court issued two decisions effectively establishing that states are immune under the Eleventh Amendment of the Constitution from suits in federal court for monetary damages for intellectual property infringement. These two decisions, *Florida Prepaid*[1] and *College Savings Bank*,[2] have prompted several bills in Congress aimed at restoring state intellectual property liability. Two such bills are currently pending in Congress.[3] The bills, versions of the Intellectual Property Restoration Act, would require states to waive their immunity as a precondition to being able to fully enforce their own intellectual property rights. If enacted, this legislation will have a significant impact on technology transfer.

The Intellectual Property Restoration Act is specifically directed at state liability for intellectual property infringement. Viewed in a broader context, however, the act is merely one battle in a larger struggle over the balance of power between the states and the federal government. The purpose of this article is to explain this broader context.

Part I: The Meaning of the Eleventh Amendment

The Constitutional Debates

The relative powers of the states and the federal government were discussed during the debates leading up to ratification of the Constitution. One instance of this was the dispute about whether the Constitution would allow a state to be sued in federal court without its consent.[4] The issue was framed

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in terms of the traditional doctrine of sovereign immunity, under which immunity from suit was a necessary attribute of sovereignty.[5]

The ratification debates specifically focused on two provisions in Article III, §2 of the Constitution, which address suits in federal court against state governments.[6] These provisions provide that the judicial power of the United States extends to suits "between a State and Citizens of another state," and "between a state . . . and foreign . . . citizens." Two opposing views emerged. One view, held most notably by Alexander Hamilton and James Madison, was that these provisions did not override state sovereignty.[7] According to Hamilton and Madison, the provisions were permissive only: they gave the federal court jurisdiction over a suit against a state only if the state consented. The other view was that the plain language of Article III gave federal courts jurisdiction whether or not the state consented, and so contradicted the assertion that Article III was permissive only. This view also had distinguished adherents, such as Patrick Henry and George Mason.[8]

As a matter of historical interpretation, which of these two views prevailed at the time of the Constitution's ratification is subject to debate.[9] However, as will be explained below, the Supreme Court has unambiguously sided with the view that the states entered the union with their sovereign immunity fully intact.

Chisholm v. Georgia and Passage of Eleventh Amendment

Notwithstanding the debate and disagreement over state sovereignty, the Constitution was ratified containing the provisions of Article III, §2. The Supreme Court's first occasion to interpret those provisions came in 1794 in *Chisholm v. Georgia*.[10] The Eleventh Amendment was adopted in direct response to the Court's decision in *Chisholm*.

The case arose from a dispute between the State of Georgia and a citizen of South Carolina, Robert Farquhar, who had supplied materials to Georgia during the Revolutionary War. Georgia did not pay Farquhar for the materials. Farquhar died, and Alexander Chisholm, his executor, sued the State of Georgia on the debt. The case was filed directly in the Supreme Court under a provision in the Judiciary Act of 1789 giving the Supreme Court original jurisdiction over controversies between states and citizens of another state.[11] Georgia did not appear for the hearing, but filed a protest against the Court asserting jurisdiction.

In a four-to-one decision (the Court at that time having only five justices), four justices ruled in favor of Chisholm and one for Georgia. The majority accepted the view that Article III allowed an unconsenting state to be sued in federal court by a citizen of another state. In so holding, the Court sided with the view that the plain language of Article III, §2 gave federal courts jurisdiction over suits between a state and citizens of another state regardless of whether the state consented to the suit.

The states were outraged by *Chisholm*, and Congress took quick action. Within a week of the Court's decision, the text of what would become the Eleventh Amendment had been introduced in Congress.[12] A year later, Congress formally proposed the Eleventh Amendment for ratification by the states, and President Adams declared the ratification process complete in 1798.[13] As ratified, the Eleventh Amendment provides: "The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state."

Hans v. Louisiana

The language of the Eleventh Amendment corresponds to the language in Article III, §2 that was the subject of debate during the state ratification conventions, and it was specifically tailored to the situation in Chisholm—a citizen of South Carolina suing the State of Georgia. That is, whereas the text of Article III, §2 provides that the judicial power of the United States extends to suits "between a state and Citizens of another state," the Eleventh Amendment says, in effect, "no it does not." This parallelism supports viewing the Eleventh Amendment narrowly as simply limiting federal jurisdiction when it is based solely on the identity of the parties to the suit—so-called diversity jurisdiction. On this diversity interpretation, federal jurisdiction based on the subject matter of the suit—federal question jurisdiction—was not affected by the Eleventh Amendment.

The Supreme Court decisively rejected the diversity interpretation of the Eleventh Amendment in its 1890 decision *Hans v. Louisiana*.[14] In *Hans*, the only issue before the Court was whether a state could be sued in federal court by one of its own citizens "upon a suggestion that the case is one that arises under the constitution or laws of the United States," in other words, on the basis of federal question jurisdiction.[15] The Court held that

the Eleventh Amendment barred the suit. According to the Court, the Eleventh Amendment had merely corrected the error of *Chisholm* and re-established the correct understanding that the Constitution embodied the "established principle of jurisprudence in all civilized nations that the sovereign cannot be sued in its own courts, or in any other, without its consent and permission."[16]

Alden v. Maine

The Court recently reaffirmed this conception of state sovereign immunity. In *Alden v. Maine*, the Court held that the State of Maine could not be sued in its own courts without its consent by state employees alleging violations of the federal Fair Labor Standards Act.[17]

As in *Hans* where the literal language of the Eleventh Amendment did not address suits by a state's own citizens, in *Alden* the literal language of the Eleventh Amendment did not address suits in a state's own courts. Following the same theory of the Eleventh Amendment it had declared in *Hans*, the Court explained that "sovereign immunity derives not from the Eleventh Amendment but from the structure of the original constitution itself."[18]

According to the Court, that structure of the original constitution defined a federal system that preserved state sovereignty in two ways. First, it reserves to the states "a substantial portion of the Nation's primary sovereignty, together with the dignity and essential attributes inhering in that status."[19] The Court explained that the states are supreme within their own spheres, no more subject to the federal government in their respective spheres than the federal government is subject to the states in its sphere.[20] Second, the federal system embraced by the Constitution is not one in which the federal government acts "upon and through the states."[21] Instead, it is a system in which "the State and Federal Governments would exercise concurrent authority over the people."[22]

Part II: Exceptions, Waivers, and Congressional Abrogation

As Alden reaffirmed, the federal system created by the Constitution is a balance between state and federal power. That balance gives rise to a number of questions: What exceptions exist to state sovereign immunity? What constitutes a valid waiver by the state of its sovereign immunity? Under what circumstances may Congress abrogate state sovereign immunity? The

Supreme Court's answers to these questions further define the context around the Intellectual Property Restoration Act.

Exceptions to the Immunity

The most important exception to state Eleventh Amendment immunity—and one the Intellectual Property Restoration Act would codify—was announced by the Court in its 1908 decision *Ex Parte Young*.[23] Minnesota had adopted a law limiting railroad rates. Railroad shareholders, believing the law unconstitutional, filed a suit in federal court seeking an injunction against Edward T. Young, the attorney general of Minnesota, to prevent him from enforcing the law. The court issued a preliminary injunction against Young, but he ignored the injunction and began an action against the railroads. Young was cited for contempt and informed that he would be held in custody until he dismissed the action. He then petitioned for habeas corpus to the United States Supreme Court, arguing the injunction was invalid under the Eleventh Amendment. The Court disagreed.

The Court's rationale rested on the Supremacy Clause of the Constitution, which says that the Constitution and the laws of the United States are the "supreme Law of the Land."[24] A state cannot violate the Constitution or a law of the United States, and neither can it confer on an individual the authority to do so. Therefore, the Court explained, when a state official acts in violation of the Constitution he "is stripped of his official or representative character and is subjected in his person to the consequences of his individual conduct. The state has no power to impart to him any immunity from responsibility to the supreme authority of the United States."[25]

Ex Parte Young established that the Eleventh Amendment does not bar a suit brought to enjoin a state official from violating the Constitution or the laws of the United States. This exception applies only to injunctions. Suits for money damages against the state remain barred.[26]

Other exceptions to the Eleventh Amendment bar also exist and warrant brief mention. For example, the Eleventh Amendment does not bar suits against states in federal court by the federal government[27] or by sister states.[28] Nor is the Eleventh Amendment a bar to suits against municipalities or political subdivisions of a state,[29] although it may prevent the suit when there is so much state involvement that the judgment would run against the state.[30] Suits against state-related entities such as boards and

commissions are also sometimes allowed, depending on whether the court views the entity as really part of the state.[31] Notably, the courts usually view state universities as qualifying for Eleventh Amendment immunity.[32]

State Waivers

Another part of the larger context around the Intellectual Property Restoration Act concerns how a state may waive its Eleventh Amendment immunity. Two types of state waivers of immunity are possible. One is where the state expressly agrees to be sued in federal court. Such express waivers must be explicit that the state is willing to be sued in federal court. Thus the Court has held that a valid waiver requires more than just a state's consent to be sued in its own courts,[33] and more than a general consent to be sued "in any court of competent jurisdiction."[34] The Court has explained that "although a State's general waiver of sovereign immunity may subject it to suit in state court, it is not enough to waive the immunity guaranteed by the Eleventh Amendment."[35] This is because "the Eleventh Amendment implicates the fundamental constitutional balance between the Federal Government and the States."[36]

The other type of waiver is when the state has not expressly consented to suit in federal court, but its actions imply consent—so-called constructive waivers. The Court has changed its position in this area. In 1964, in *Parden v. Terminal Railway of Alabama State Docks Department*, the Court held that implied waivers are valid.[37] The State of Alabama was sued for alleged violations of the Federal Employers' Liability Act in the operation of a state railroad. The Court held the state's operation of the state railroad to be an implied consent to suit in federal court under the act.[38]

However, nine years later, in *Employees of the Department of Public Health & Welfare v. Department of Public Health & Welfare*, the Court began to retreat from constructive waivers, holding that a waiver could not be implied absent a clear declaration from Congress that it intended to make states liable if they violated the federal law.[39] Another year after that, in *Edelman v. Jordan*, the Court refused to infer waiver from the state's participation in a program through which the federal government provided assistance for the operation by the state of a system of public aid.[40]

In 1987, in *Welch v. Texas Department of Highways & Public Transportation*, the Court distanced itself still further, overruling *Parden*

"to the extent [it] is inconsistent with the requirement that an abrogation of Eleventh Amendment immunity by Congress must be expressed in unmistakably clear language."[41] The Court finally overruled *Parden* in *College Savings Bank v. Florida Prepaid Postsecondary Education Expense Board*.[42] Referring to *Parden* as "an elliptical opinion that stands at the nadir of our waiver (and, for that matter, sovereign immunity) jurisprudence,"[43] the Court went on: "*Parden* stands as an anomaly in the jurisprudence of sovereign immunity, and indeed in the jurisprudence of constitutional law. Today, we drop the other shoe: Whatever may remain of our decision in *Parden* is expressly overruled."[44]

In short, state waivers must be explicit and will not be implied from state actions, such as participation in a federally regulated system.

Abrogation by Congress

A third important part of the context around the Intellectual Property Restoration Act concerns the circumstances under which Congress may abrogate state sovereign immunity. *Florida Prepaid* and *College Savings* are instances of the Court's decisions on Congressional abrogation, but, viewed in context, they are not the most significant decisions in this area.

Fitzpatrick v. Bitzer

To abrogate state sovereign immunity, Congress must do so pursuant to the exercise of a constitutionally granted power. In *Fitzpatrick v. Bitzer*,[45] the Court recognized that one such power is contained in section 5 of the Fourteenth Amendment. The Fourteenth Amendment provides, inter alia, that no state shall deprive any person of life, liberty, or property without due process of law. Section 5 gives Congress the authority to pass laws to enforce the other provisions of the amendment. In *Fitzpatrick*, state employees sued the State of Connecticut for alleged discrimination in the state's retirement benefits plan, in violation of Title VII of the Civil Rights Act of 1964.

The lower court ruled that the Eleventh Amendment applied, granted an injunction to prevent ongoing violations, but denied any award of monetary damages against the state.[46] The issue before the Court was whether the Eleventh Amendment barred the award of damages. The Court held it did not, because Congress, acting pursuant to its powers under section 5 of the Fourteenth Amendment, had properly abrogated state immunity from

suits under Title VII. The Court explained that the prohibitions of the Fourteenth Amendment are explicitly directed at the states, and Congress is expressly given the authority to enforce those provisions. Accordingly, the Court reasoned that the Fourteenth Amendment was a limitation of the power of the states and an enlargement of the power of the federal government.[47] In other words, under the authority of section 5 of the Fourteenth Amendment, Congress may abrogate state sovereign immunity.

Pennsylvania v. Union Gas

Fitzpatrick left unresolved whether Congress had other authority under the Constitution to abrogate immunity in addition to that provided by the Fourteenth Amendment. The Court addressed that question in 1989 in *Pennsylvania v. Union Gas Co.*[48] The case arose after Pennsylvania and the federal government began environmental cleanup, as required by the Comprehensive Environmental Response, Compensation, and Liability Act, of coal tar seeping into a creek. To recover some of the cleanup costs, the federal government sued Union Gas Co., whose predecessor had operated on the location and allegedly deposited the coal tar. In response, Union Gas filed a third-party action in federal court against Pennsylvania, arguing that the state was liable for a portion of the cleanup cost.

Just four years earlier, in *Atascadero State Hospital v. Scanlon,* the Court had held that when Congress abrogates state sovereign immunity, it must make its intention to do so "unmistakably clear."[49] Accordingly, the first question the Court addressed in Union Gas was whether Congress had made unmistakably clear its intention to subject states to liability under CERCLA. The Court concluded that Congress had done so.[50] Consequently, the Court next considered whether Congress had abrogated state immunity pursuant to a proper exercise of authority. In enacting CERCLA (and its related amendments in the Superfund Amendments and Reauthorization Act of 1986), Congress had acted pursuant to its powers under the Constitution's Commerce Clause.[51] Therefore, the question before the Court was whether Congress had the authority under the Commerce Clause to abrogate Eleventh Amendment immunity. The Court held that it did, reasoning that Congress' commerce power inherently carried with it a limitation on state sovereignty.[52]

Copyright Remedy Clarification Act, Trademark Remedy Clarification Act, and Patent Remedy Clarification Act

The combination of *Atascadero* and *Union Gas* indicated that Congress could abrogate Eleventh Amendment immunity pursuant to Congress' Commerce Clause powers if it did so by making its intent "unmistakably clear" in the statute. From the vantagepoint of 1989, therefore, these decisions presented both a problem to Congress and a way to solve that problem. The problem was that the "unmistakably clear" standard of *Atascadero* threw into question any federal statute purporting to subject states to liability but using language that was anything less than unmistakably clear. The solution was given by the Court's holding that Congress could abrogate immunity under its Commerce Clause powers. Because so much Congressional legislation falls under the Commerce power, Congress could simply go back to those statutes enacted under its Commerce power and add language to satisfy the unmistakably clear standard.

That is what Congress did in 1990 when it enacted the Copyright Remedy Clarification Act (CRCA),[53] and again in 1992, when it enacted the Trademark Remedy Clarification Act (TRCA)[54] and the Patent Remedy Clarification Act (PRCA).[55] Prior to these acts, in other words, federal copyright, trademark, and patent law arguably failed to make it "unmistakably clear" that Congress intended states to be liable for violations of the federal statutes. The three clarification acts corrected this. Each act was presented as an exercise of Congress' Commerce power—pursuant to *Union Gas*—and, in each case, the amendment was to add language to the federal law stating explicitly that states were subject to liability under the statute.[56]

Seminole Tribe v. Florida

In 1996, only a few years after enactment of the clarification acts, the Court, in an about-face, overruled *Union Gas* and held that Congress may abrogate state sovereign immunity only under section 5 of the Fourteenth Amendment. This came in *Seminole Tribe of Florida v. Florida*,[57] a case arising under the Indian Gaming Regulatory Act (IGRA).[58] IGRA, which was passed pursuant to Congress' power under the Indian Commerce Clause,[59] requires states to negotiate with Indian tribes to form compacts to allow gambling on Native American land.[60] IGRA also authorizes a tribe to bring suit in federal court against a state to compel performance of this duty to negotiate.[61]

The Seminole Tribe of Florida sued the State of Florida under IGRA, alleging that Florida had failed to fulfill its obligation to negotiate. Florida asserted the suit was barred by the Eleventh Amendment. The Court agreed, holding that Congress lacks the authority to abrogate immunity under the Indian Commerce Clause or the Interstate Commerce Clause—explicitly overruling *Union Gas*—and that, therefore, IGRA was unconstitutional.[62]

City of Boerne v. Flores

The implications of *Seminole* were profound. Under *Seminole*, the only authority Congress has to abrogate state sovereign immunity is section 5 of the Fourteenth Amendment. This forces the question as to exactly what constitutes valid section 5 legislation. The Court addressed that question one year after *Seminole*, in *City of Boerne v. Flores*.[63] There, the City of Boerne, Texas, classified a church building as a historic landmark. The effect of this classification was that the church was prevented from constructing a new facility on its property. The church sued the city under the recently enacted Religious Freedom Restoration Act of 1993 (RFRA). RFRA had been passed in response to the Court's 1990 decision *Employment Div., Dept. of Human Resources of Oregon v. Smith*, in which the Court upheld an Oregon drug law that applied generally but had the incidental effect of preventing members of a Native American church from ingesting peyote for sacramental purposes. The Smith Court held the law was not a violation of the Constitution's protection of the free exercise of religion.[64] Congress' stated purpose in enacting RFRA was to overturn Smith and re-establish the test used prior to Smith. Most importantly, Congress had relied on its Fourteenth Amendment powers in enacting RFRA.[65]

Nonetheless, the Court held that RFRA was unconstitutional because Congress, although it had relied on section 5 of the Fourteenth Amendment, had not properly exercised its section 5 authority. The Court explained that section 5 gives Congress the power "to enforce" the other provisions of the amendment.[66] This enforcement power, the Court explained, does not consist of interpreting the Constitution, but is a matter of remedying or preventing constitutional violations.[67] Invoking *Marbury v. Madison*[68]—the landmark 1803 decision establishing that the Supreme Court as the ultimate authority on what the Constitution means—the Court emphasized that

what constitutes a constitutional violation is for the Supreme Court to decide, not Congress.[69] The Court further explained that a valid exercise of Congress' section 5 enforcement power must be narrowly tailored and a "proportionate" and "congruent" response to prevent and remedy constitutional violations.[70]

Florida Prepaid and *College Savings Bank*

Two years after *City of Boerne*, the Court announced *Florida Prepaid* and *College Savings Bank*. As shocking as these decisions were to the intellectual property community, they were predictable applications of the Court's Eleventh Amendment jurisprudence. In particular, and with the benefit of hindsight, the two decisions were predictable implications of *Seminole Tribe* and *City of Boerne*. Viewed broadly, and in the larger context of the Court's interpretation of the Eleventh Amendment, both cases are merely instances of the Court's willingness to protect state sovereignty by finding that Congress exceeded its constitutional powers.

In the mid-1990s, College Savings Bank, a New Jersey chartered bank, filed patent and trademark infringement claims against the State of Florida.[71] The suit centered on College Savings' college prepayment program, which consisted of a certificate of deposit, the CollegeSure CD, indexed to college costs and guaranteed to meet future tuition, room, and board. The State of Florida also offered a college prepayment program, through a legislatively created arm, the Florida Prepaid Postsecondary Education Expense Board. The suit alleged that Florida Prepaid was infringing College Savings' patent on the method of administering the CollegeSure CD, and that Florida Prepaid had engaged in unfair competition, in violation of the Lanham Act, by making false statements about Florida Prepaid's own prepayment program in its advertising.

Florida Prepaid moved to dismiss both claims on the grounds of the Eleventh Amendment. The district court granted the motion to dismiss the Lanham Act claim, but denied the motion to dismiss the patent-infringement claim.[72] On appeal, the action split in two, the patent-infringement claim going before the Federal Circuit Court of Appeals, and the Lanham Act claim before the Third Circuit Court of Appeals. Both courts of appeal affirmed,[73] and so the dispute arrived in the Supreme Court bifurcated into the patent case appealed from the federal circuit and the Lanham Act case

from the third circuit. The Supreme Court accordingly issued two opinions addressing in each the state's Eleventh Amendment defense.

In the patent case, *Florida Prepaid Postsecondary Expense Savings Board v. College Savings Bank*,[74] the Court held that PRCA exceeded the scope of Congress' section 5 enforcement powers. The problem with PRCA, in the Court's view, was that the law was not "proportionate" and "congruent" because of the absence of any record of a pattern of patent infringements by state governments.[75] In the Lanham Act case, *College Savings Bank v. Florida Postsecondary Expense Savings Board*,[76] the Court held that the right College Savings Bank alleged the state had violated—the right to be free from misrepresentation—was not a property right, hence not a right secured by the Fourteenth Amendment, and, therefore, not a right Congress could legislate to protect under its section 5 enforcement powers.[77]

The Court did not, in *College Savings Bank*, directly hold that states have sovereign immunity against claims of trademark infringement; likewise, the Court has not explicitly held that states are immune from claims of copyright infringement. Nonetheless, the combination of *Florida Prepaid* and *College Savings Bank* with the Court's other Eleventh Amendment decisions, especially *Seminole Tribe*, leaves little doubt that both TRCA and CRCA are unconstitutional. The attorney general of the United States has informed Congress that TRCA and CRCA probably fail because the legislative record fails to meet the court's requirements for valid section 5 legislation.[78] Among the courts of appeal, the fifth circuit has held that the University of Houston, an arm of the State of Texas, is immune from copyright infringement suits.[79] In July of 2000, the register of copyrights told Congress that "the CRCA is most likely now bad law."[80]

In sum, the effect of *Florida Prepaid* and *College Savings* is that states have Eleventh Amendment immunity against patent, copyright, and trademark infringement claims. The immunity is subject to exceptions such as *Ex Parte Young*, and to Congress' abrogation power under section 5 of the Fourteenth Amendment.

Later Decisions

After *Florida Prepaid* and *College Savings*, the Court continued to announce other significant Eleventh Amendment decisions that have further drawn out the implications of Seminole. These cases bear a brief note

here because they further illustrate how *Florida Prepaid* and *College Savings* are instances of a broad pattern in the Supreme Court's Eleventh Amendment jurisprudence.

For example, in *Kimel v. Florida Board of Regents*, the Court held that, although Congress had clearly expressed its intent to subject states to suits under the Age Discrimination in Employment Act, the purported abrogation of state sovereign immunity was invalid because Congress exceeded its powers under section 5.[81] The Court reached a similar result in *Board of Trustees of the University of Alabama v. Garrett* with regard to the Americans with Disabilities Act.[82] The Court held again that Congress had made its intention to abrogate immunity unmistakably clear, but that Congress had exceeded its section 5 authority because there was no pattern of state violations against persons with disabilities. In *Federal Maritime Commission v. South Carolina State Ports Authority*, the Court broadened its conception of state sovereign immunity still further in holding that a complaint filed with the Federal Maritime Commission—an administrative tribunal, not a federal court—by a cruise-ship company against the South Carolina Ports Authority was barred by the Eleventh Amendment.[83]

It is possible that the Court has reached its high-water mark in upholding state sovereign immunity. Last term, the Court held in *Nevada Department of Human Resources v. Hibbs* that Congress acted within its authority under section 5 when it subjected states to liability for money damages under the Family Medical Leave Act.[84]

Part III: Congress' Response

Early Proposals, Their Rationale, and Alternatives

Florida Prepaid and *College Savings* were decided on June 23, 1999. Since then, six bills have been introduced, including the two current bills, S. 1191 and H.R. 2344, aimed at re-establishing state liability for infringement.[85] Four of these bills, including S. 1191, were introduced by Sen. Patrick Leahy of Vermont.

In remarks Senator Leahy made on the floor of the Senate when he introduced S. 1191, he explained there is an "urgent need for Congress to respond to the *Florida Prepaid* decisions."[86] Senator Leahy gave two reasons for this urgent need. First, "if we truly believe in fairness, we cannot toler-

ate a situation in which some participants in the intellectual property system get legal protection but need not adhere to the law themselves."[87] Quoting his colleague Sen. Arlen Specter of Pennsylvania, Leahy said that the *Florida Prepaid* decisions "leave us with an absurd and untenable state of affairs," where "states will enjoy an enormous advantage over their private sector competitors."[88]

Second, Senator Leahy said Congress needs to respond to the *Florida Prepaid* decisions because "they raise broader concerns about the roles of Congress and the Court."[89] In Leahy's view, the Court has been "whittling away at the legitimate constitutional authority of the federal government," and Congress should respond "by reinserting our democratic policy choices in legislation that is crafted to meet the Court's stated objections."[90] Implicit in this second reason are both the struggle for power between Congress and the Court, and the balance of power between the federal government and the states.

The proposed legislation would respond to this need by requiring states to waive their sovereign immunity as a condition of full participation in the federal intellectual property system. This is one of several possible approaches. Notably, one approach Congress has not attempted is to use its enforcement powers under section 5 of the Fourteenth Amendment and abrogate state sovereign immunity from intellectual property infringement claims. This may be due in part to a September 2001 Government Accounting Office report on state sovereign immunity in infringement actions, which had been requested by Sen. Orin Hatch of Utah.[91] The GAO report found that "few accusations of intellectual property infringement appear to have been made against the States either through the courts or administratively."[92] In *Seminole* and its progeny, the Supreme Court had limited Congress' ability to abrogate state sovereign immunity to Congress' enforcement powers under section 5 of the Fourteenth Amendment and had interpreted those enforcement powers to be properly directly only at patterns of state violations. By failing to find any pattern of state infringement, the GAO report undercut the foundation Congress needed to exercise its section 5 powers.

Other responses to *Florida Prepaid* and *College Savings* that Congress has considered but not pursued include (1) amending the federal intellectual property laws to allow state courts jurisdiction, (2) conditioning the

states' receipt of certain federal funds on a waiver of immunity for infringement suits, and (3) empowering a federal agency to bring actions against states for violating the intellectual property rights of private parties.[93]

S. 1191 and H.R. 2344

The current approach, as embodied in S. 1191 and H.R. 2344, the Intellectual Property Restoration Act of 2003, allows states to obtain patents and copyright and trademark registrations, but limits their enforceability.[94] In particular, the act requires states to waive their immunity as a precondition of being able to obtain money damages for infringement of intellectual property.[95] If a state does not waive, then the prohibition against damage awards applies to any patent, copyright, or federal trademark issued, created, or registered on or after January 1, 2004.[96] The act would thus affect only such "postcritical date intellectual property"; it would not affect pre-existing patents, copyrights, and trademarks. Nor would it prevent a state that had not waived from obtaining an injunction to stop infringement. The act would apply only to a state's ability to obtain money damage awards. At the same time as the act thus weakens a state's offensive position, the act would also weaken the state's defensive position as regards infringement. It does this in two ways: it would codify *Ex Parte Young* by providing that state officials could be enjoined from infringing intellectual property, and it would make states liable for takings or due-process violations under the Fifth and Fourteenth Amendments.[97]

The states are given until January 1, 2006, to make a waiver. If a state files an infringement suit before January 1, 2006, the court may stay the action to afford the state time to waive its immunity.[98] After that date, a state would not be able to collect money damages for any infringement of postcritical date intellectual property that occurred prior to the state waiving its immunity. If a state never waived its immunity, it would not be able to collect money damages for any infringement of postcritical date intellectual property.

The act's reach is broad. An intellectual property right would be affected by the act if the state is, or was at any time, the legal or beneficial owner of the right.[99] Therefore, a state could not avoid the effect of the act by, for example, assigning its intellectual properties to a private nonprofit foundation. Licensing of intellectual property by states would also be affected.

Because the state owns the licensed intellectual property, the rights could not be enforced in damages suits by either the state or its licensee. Further, the bill does not allow a state to waive its immunity only in part; waivers must be for the state as a whole.[100] Therefore, a state could not, for example, waive immunity for its universities but preserve immunity for other state agencies. Similarly, a state must waive its immunity with respect to all intellectual property to obtain money damage awards with respect to any intellectual property.[101] A state could not waive its immunity to patent infringement, for example, but retain its immunity to copyright and trademark infringement.

Is the Act Constitutional?

The most likely constitutional challenge to the Intellectual Property Restoration Act is that it remains an improper attempt by Congress to use its Article I powers to abrogate state immunity.[102] Such an argument rests on the premise that the act, although purporting to make waivers voluntary, is, in fact, coercive. It threatens to deny states their intellectual property rights unless they waive their immunity.

Such an argument would face significant obstacles. The Court has held that Congress may use its Article I powers to do indirectly what it cannot do directly. For example, in *South Dakota v. Dole*, the Court held that Congress could condition a state's receipt of federal highway funds on the state legislature raising the drinking age to 21.[103] Similarly, in *Petty v. Tennessee-Missouri Bridge Commission*, the Court held that a bistate commission created pursuant to an interstate compact had consented to suit by reason of a suability provision attached to the Congressional approval of the compact.[104] Other decisions by the Court support the general proposition that Congress may hold out *incentives* to influence a state's policy choices.[105] Viewed from this perspective, the act would simply be an attempt to influence states into waiving their immunity by offering the incentive of the privilege to participate fully in the federal intellectual property system.

At the same time, the argument against the act finds support in the Court's clear statements that, in the Eleventh Amendment context, a state's waiver must be fully voluntary to be effective. The voluntariness of a state's waiver in response to the act would be highly questionable, because the act threatens states with the loss of their intellectual property rights.

College Savings is instructive on this point, and contains language that must give pause to the act's supporters. There, College Savings Bank, relying on the constructive-waiver theory of *Parden*, argued that TRCA clearly put states on notice that they would be subject to suit if they engaged in activities regulated under the Lanham Act. By "engaging in the voluntary and nonessential activity of selling and advertising a for-profit educational investment vehicle in interstate commerce," College Savings Bank argued, the Florida Prepaid Postsecondary Education Board constructively waived its immunity from suit.[106] The Court responded, of course, by overruling *Parden* and the constructive-waiver theory. However, in its discussion, the Court considered an argument in defense of constructive waivers, and the Court's treatment of that argument is suggestive as regards whether the Court would view the act as unconstitutionally coercive.

The argument was that *Petty* and *Dole* established that Congress may, in the exercise of its Article I powers, extract "constructive waivers" of state sovereign immunity.[107] Distinguishing *Petty* and *Dole*, the Court pointed out that it is a "gratuity" on the part of Congress to consent to an interstate compact and a "gift" to disburse funds to the states.

The Court further explained: "In the present case, however, what Congress threatens if the State refuses to agree to its condition is not the denial of a gift or gratuity, but a sanction: exclusion of the State from otherwise permissible activity. . . . we think where the constitutionally guaranteed protection of the States' sovereign immunity is involved, the point of coercion is automatically passed—and the voluntariness of waiver destroyed—when what is attached to the refusal to waive is the exclusion of the State from otherwise lawful activity."[108]

It appears the "condition" the Court refers to is that the state waive its immunity, and "what Congress threatens" if the state refuses to agree to that condition is "exclusion of the state from otherwise permissible activity," namely, the exercise of rights under the Lanham Act. The Court, therefore, seems to be saying that a state's waiver of its immunity in response to a Congressional threat to be excluded from the otherwise lawful exercise of intellectual property rights would not be voluntary, and so would not be a valid Eleventh Amendment waiver. If that is the Court's view, it does not bode well for the Intellectual Property Restoration Act.[109]

Implications for Technology Transfer

The Intellectual Property Restoration Act has immense implications for technology transfer at public universities. The implications arise primarily from the act's requirement that a state, as a whole, must waive its sovereign immunity before any part of the state could fully enforce its intellectual property rights.

Will states be willing to waive their sovereign immunity from intellectual property infringement suits if the act passes? Inasmuch as among state entities it is public universities and their technology transfer programs that benefit most directly from full participation in the intellectual property system, it seems likely that public universities will be the strongest advocates within the states for waiver. A state as a whole, however, might well conclude that the financial liability avoided by sovereign immunity from infringement is worth more than the financial earnings from its public universities' technology transfer programs. But such a narrow economic calculation, in itself extremely complex, would surely not be the only dimension of a state's decision making on this issue.

Other dimensions might include the effect on the public universities' ability to recruit and retain faculty, how the state's overall business climate would be affected, the extent to which the state had already waived its sovereign immunity from claims against it in its own courts,[110] and, perhaps most incalculable of all, the states' rights issue: the state's willingness to accede to Congress' assertion of federal power over state sovereignty. Each state will be faced with a complex public-policy question with many dimensions, and it is far from clear how states will respond.

What will happen to technology transfer at a state's public universities if the act passes and the state does not waive its immunity? In that case, although injunctions would still be available, neither the state university nor the university's licensees or assignees would be able to sue for money damages for infringement of any "postcritical-date" intellectual property of which the university is or was the legal or beneficial owner. The effect this would have on technology transfer at public universities would probably be devastating. The precise contours the wreckage would take are difficult to predict, but one can reasonably hazard a few broad conjectures.

First, it would make it more difficult for public universities to protect their intellectual property rights. Despite the availability of injunctions, the

costs of the legal action necessary to obtain an injunction, combined with the unavailability of a money damage award, would significantly raise the bar against such actions.

Second, exclusive licensing, as currently practiced, would probably no longer be viable. Without the availability of damage awards, few, if any, companies would likely be willing to take an exclusive license to a public university's technology. For companies that would otherwise take exclusive licenses, this would represent a loss of economic opportunity. That, in turn, would probably mean technologies that commonly require market exclusivity to be commercially viable, such as pharmaceuticals, would not be deployed from public universities for the public benefit.

Third, nonexclusive licensing would be undermined but probably not altogether eliminated. In many cases, a company probably would be unwilling to pay for a nonexclusive license to university technology when the risk of infringement is nothing more than that a cash-starved public university might seek an injunction to stop the infringement.

The act raises many other questions as well. Would it affect public universities' ability to obtain federal research grants? How would it affect research sponsorship from private commercial entities? How would it affect public universities' ability to promote economic development in their respective states? What would the effects be on private universities and commercial entities that license university technology? None of these questions has a clear answer at this time.

Conclusion

The Intellectual Property Restoration Act presents a sort of legislative perfect storm in which three major issues have converged. For the technology transfer community, the act presents the issue of state liability for intellectual property infringement—the "fairness" of states being immune and the competition between states and private business and private universities. For Congress, the act presents a power struggle with an activist Supreme Court whose decisions have diminished Congress' power and overruled Congress' legislative choices. For the nation as a whole, the act is an instance of the states' rights issue: the tension, inherent in the Constitution and the nation's federal structure, between the power of the states and the power of the national government. These are issues that can be neither

avoided nor fully resolved. The unfolding attempt to address them, at the level of the Congress, the states, and the universities, will shape the future of technology transfer.

Notes

1 *Florida Prepaid Postsecondary Education Expense Board v. College Savings Bank*, 527 U.S. 627 (1999).

2 *College Savings Bank v. Florida Prepaid Postsecondary Education Expense Board*, 527 U.S. 666 (1999).

3 S. 1191, 108th Cong. (2003); H.R. 2344, 108th Cong. (2003).

4 See generally John J. Gibbons, "The Eleventh Amendment and State Sovereign Immunity: A Reinterpretation," 83 *Col. L. Rev.* 1889, 1899-1914 (1983) (hereafter "Gibbons").

5 *Alden v. Maine*, 527 U.S. 706, 715 (1999) (citing 1 W. Blackstone, *Commentaries on the Laws of England* 234-235 (1765)).

6 Article III of the Constitution defines the judicial powers of the United States. Articles I and II define the powers of Congress and the Executive, respectively.

7 E.g., *The Federalist No. 81* (A. Hamilton) (emphasis original), available at http://www.yale.edu/lawweb/avalon/federal/fed.htm; 3 *The Debates in the Several State Conventions of the Adoption of the Federal Constitution*, Vol. 3, p. 533 (J. Elliot ed. Philadelphia 1866) (hereafter "Elliot's Debates"), available at: http://memory.loc.gov/ammem/amlaw/lwed.html.

8 3 Elliot's Debates, at 543 (Mason) and 527 (Henry).

9 See generally Erwin Chemerinsky, *Constitutional Law* 185-190 (2002) (hereafter "Chemerinsky") (a brief overview of the two views); Gibbons, 83 *Colum. L. Rev.* 1889 (detailed historical treatment of the issue); John T. Noonan, Jr., *Narrowing the Nation's Power* 58-85 (2002) (arguing that state immunity was not part of the constitutional design); James F. Simon, *What Kind of a Nation* (2002) (general history of early struggles to balance federal powers and states' rights).

10 2 Dall. (2 U.S.) 419 (1793).

11 The Judiciary Act of 1789, ch. 20, §13, 1 Stat. 73, 80.

12 Charles Warren, 1 *The Supreme Court in United States History* 101 (Little, Brown, rev. ed. 1932).

13 Id. 1 Elliot's Debates, at 341.

[14] 134 U.S. 1 (1890).

[15] Id. at 9.

[16] Id. at 17 (quoting *Beers v. Arkansas*, 61 U.S. (20 How.) 527 (1858).

[17] 527 U.S. 706 (1999).

[18] Id. at 728.

[19] Id. at 714.

[20] Id.

[21] Id.

[22] Id. (quoting *Printz v. United States*, 521 U.S. 898, 919-920 (1997)).

[23] 209 U.S. 123 (1908).

[24] U.S. Const. art. VI, cl. 2.

[25] *Ex Parte Young*, 209 U.S. at 159-160.

[26] Suits for money damages against state officials are allowed under some circumstances. The viability of such suits depends on whether the suit is against the official in his or her "individual" or "official" capacity, and on the availability of common law immunities. See, e.g., *Hafer v. Melo*, 502 U.S. 21, 25 (1991) (an "individual capacity" suit seeks "to impose individual liability upon a government officer for actions taken under color of state law"); *Edelman v. Jordan*, 415 U.S. 651, 675 (1974) (a suit seeking a judgment to be paid from the public treasury is an official capacity suit and barred); *Harlow v. Fitzgerald*, 457 U.S. 800, 818 (1982) ("qualified" common law immunity exists when the action for which liability is sought to be imposed is such that a reasonable person would not have realized it violated federal law). Cf. *Blaylock v. Schwinden*, 862 F.2d 1352, 1354 (9th Cir. 1988) (state indemnification requirements do not affect whether a suit is an official capacity suit). See generally Chemerinsky, at 207-208 (discussing official and individual capacity suits and common law immunities).

[27] *United States v. Mississippi*, 380 U.S. 128, 140-141 (1965). On whether Congress could authorize a private party to sue on behalf of the federal government in a *qui tam* action, see *Vermont Agency of Natural Resources v. United States* ex rel. Stevens, 529 U.S. 765, 787 (2000) (expressing doubt "whether an action in federal court by a qui tam relator against a State would run afoul of the Eleventh Amendment").

[28] *South Dakota v. North Carolina*, 192 U.S. 286, 315-21 (1904); *Colorado v. New Mexico*, 459 U.S. 176, 182 n. 9 (1982).

[29] *Mt. Healthy City School District Board of Education v. Doyle*, 429 U.S. 274 (1977).

[30] *Pennhurst State School & Hospital v. Halderman*, 465 U.S. 89, 123-124 (1979).

[31] The courts use a variety of factors for such determinations, such as the entity's source of funding, the extent of state control over the entity's decisions and actions, whether the entity's head is appointed by the state executive or legislature, and how the entity is characterized under state law. See John R. Pagan, "Eleventh Amendment Analysis," 39 *Ark. L. Rev.* 447, 461 (1986) (identifying criteria courts rely on to decide whether a state-related entity receives Eleventh Amendment immunity) (hereafter "Pagan"). See generally Chemerinsky, at 195-197.

[32] E.g., *Regents of the University of California v. Doe*, 519 U.S. 425 (1997); *Clay v. Texas Women's University*, 728 F.2d 714 (5th Cir. 1984); *Jackson v. Hayakawa*, 682 F.2d 1344 (9th Cir. 1982); cf. *Hander v. San Jacinto Junior College*, 522 F.2d 204, 205 (5th Cir. 1975) (Texas junior college districts are independent political subdivisions not immune for Eleventh Amendment purposes). See generally Pagan, at 461.

[33] E.g., *Florida Dept. of Health & Rehabilitative Services v. Florida Nursing Home Assn.*, 450 U.S. 147, 149-150 (1980).

[34] E.g., *Kennecott Copper Corp. v. State Tax Commission*, 327 U.S. 573, 578-580 (1946).

[35] *Atascadero State Hospital v. Scanlon*, 473 U.S. 234, 241 (1985).

[36] Id. at 238.

[37] 377 U.S. 184 (1964), overruled by *College Savings Bank v. Florida Prepaid Postsecondary Education Board*, 527 U.S. 666, 680 (1999).

[38] *Parden*, 377 U.S. at 192.

[39] 411 U.S. 279, 285 (1973).

[40] 415 U.S. 651, 673 (1974).

[41] 483 U.S. 468, 478 (1987).

[42] 527 U.S. 666 (1999).

[43] Id. at 676.

[44] Id. at 680.

[45] 427 U.S. 445 (1976).

[46] 390 F. Supp. 278 (D. Conn. 1974).

[47] *Fitzpatrick*, 427 U.S. at 454.

[48] 491 U.S. 1 (1989), overruled by *Seminole Tribe of Florida v. Florida*, 517 U.S. 44, 66 (1996).

[49] *Atascadero State Hospital v. Scanlon*, 473 U.S. 234, 242 (1985).

[50] *Union Gas*, 491 U.S. at 13.

[51] U.S. Const. art. I, sec. 8, cl. 3.

[52] *Union Gas*, 491 U.S. at 13-23.

[53] Pub. L. No. 101-553, 104 Stat. 2749 (1990) (codified at 17 U.S.C. §§ 501(a), 511); see generally M. Nimmer and D. Nimmer, *Nimmer on Copyright* § 12.01[E][2][b], at 12-48 (Congress enacted CRCA "[b]ased on *Union Gas'* conclusion that Congress may, in the exercise of its Article I authority, abrogate state Eleventh Amendment immunity").

[54] Pub. L. No. 102-542, 106 Stat. 3567 (1992) (codified at 15 U.S.C. §§ 1122, 1125(a)).

[55] Pub. L. 102-560 (codified at 35 U.S.C. §§271(h), 296(a)).

[56] For example, section 43(a) of the Lanham Act (15 U.S.C. § 1125(a)), as originally enacted in 1946, created a private right of action against "[a]ny person" who uses false descriptions or makes false representations in commerce. The TRCA amended section 1125 by redefining "any person" to include states and their instrumentalities and employees acting in official capacities. 15 U.S.C. § 1125(a)(2).

[57] 517 U.S. 44 (1996).

[58] 25 U.S.C. §2702 et seq.

[59] The Indian Commerce Clause is a subpart of Const. art. I, sec. 8, cl. 3, which also grants Congress' power to regulate commerce between the states.

[60] 25 U.S.C. §2710(d)(3)(A).

[61] 25 U.S.C. §2710(d)(7).

[62] 517 U.S. at 59-63. The Court also went further and created an exception to the *Ex Parte Young* doctrine. The relief the tribe was seeking was prospective: an order from the federal court requiring Florida to negotiate a compact. This would have seemed to have been a situation where the theory of *Ex Parte Young* would apply. Insofar as state officials were acting contrary to federal law, they were stripped of their official status and could not assert the Eleventh Amendment as a defense. But the Court declined to apply this approach, and held instead that state offi-

cers cannot be sued to enforce federal regulations that contain comprehensive enforcement mechanisms. 517 U.S. at 73-76.

63 521 U.S. 507 (1997).

64 494 U.S. 872 (1990).

65 521 U.S. at 516-17.

66 Id. at 519.

67 Id. at 516-529.

68 1 Cranch (5 U.S.) 137 (1803). See Chemerinsky, at 39: "*Marbury v. Madison* is the single most important decision in American constitutional law."

69 521 U.S. at 516.

70 Id. at 520.

71 *College Savings Bank v. Florida Postsecondary Expense Savings Board*, 948 F. Supp. 400 (D. N.J. 1996).

72 Id.

73 *College Savings Bank v. Florida Postsecondary Expense Savings Board*, 131 F.3d 353 (3rd Cir. 1997); *College Savings Bank v. Florida Postsecondary Expense Savings Board*, 148 F.3d 1343 (Fed. Cir. 1998).

74 527 U.S. 627 (1999).

75 Id. at 646-47,

76 527 U.S. 666 (1999).

77 Id. at 675.

78 *State Sovereign Immunity and Protection of Intellectual Property*, Hearing before the Subcommittee on Courts and Intellectual Property of the House Committee on the Judiciary, 106th Cong. 20 (July 27, 2000) (hereafter "July 2000 Hearing") (statement of Todd Dickenson, undersecretary of commerce for Intellectual Property and director of the United States Patent and Trademark Office, United States Department of Commerce), July 27, 2000, available at http://commdocs.house.gov/committees/judiciary/hju66710.000/hju66710_0.HTM.

79 See *Chavez v. Arte Publico*, 204 F.3d 601 (5th Cir. 2000) (CRCA is unconstitutional because it fails as remedial legislation).

80 July 2000 Hearing, at 54 (statement of Marybeth Peters, register of copyrights, Copyright Office of the United States, Library of Congress).

81 528 U.S. 62 (2000).

[82] 531 U.S. 356 (2001).

[83] U.S. 743 (2002).

[84] — U.S. —, 123 S. Ct. 1972, 155 L. Ed. 2d 953 (2003).

[85] The first bill, S. 1835 in the 106th Congress, was introduced by Sen. Patrick Leahy of Vermont in October 1999. With extensive findings and purposes, S. 1835 would have provided that no state could acquire a federal intellectual property right without first opting into the federal intellectual system by waiving sovereign immunity. The bill also aimed to abrogate state immunity to the maximum extent permitted under the Constitution. In the 107th Congress, in November 2001, Senator Leahy introduced a new bill, S. 1611, that followed the same general approach as his bill of two years previous—requiring states to waive as a condition of exercising intellectual properties rights—but which was greatly revised. A companion bill to S. 1611, H.R. 3204, was also introduced at that time by Rep. Howard Coble of North Carolina. Later in the 107th Congress, Senator Leahy introduced the same text as a new bill, S. 2031, on March 19, 2002, co-sponsored by Senator Sam Brownback of Kansas. The two bills now pending in the 108th Congress, S. 1191 and H.R. 2344, were both introduced on June 5, 2003, in the Senate by Leahy and in the House by Lamar Smith of Texas and co-sponsored by Howard Berman of California and John Conyers Jr. of Michigan. S. 1191 and H.R. 2344 are textually the same bill. They differ from the bills in the 107th Congress only in that the states are given relatively longer time periods to waive their immunity than was allotted them under the 107th Congress bills.

[86] Cong. Rec. S7479, June 5, 2003.

[87] Id.

[88] Cong. Rec. S7480, June 5, 2003. This issue of fairness has been a recurrent theme in hearings regarding the *Florida Prepaid* decisions. At a hearing on July 27, 2000, before the House Subcommittee on Courts and Intellectual Property, Rep. Howard Berman of California described the necessity of correcting the "unfairness and imbalance in Federal law" created by *Florida Prepaid* and *College Savings Bank*: "After those decisions, states can infringe the intellectual property rights of others with virtual impunity, while still enforcing their own intellectual property rights against all others. This situation is made doubly unfair

by virtue of the fact that states often engage in for-profit enterprise and direct competition with private actors. States run publishing houses, radio stations, restaurants, and hospitals, develop drugs, medical technologies, and commercial software products, and sell a variety of merchandise. To the extent that they do not have to license or otherwise pay for intellectual property rights when running these businesses, states have a competitive advantage over private actors. That is not right, even though my alma mater, University of California, would be among the largest of these owners of intellectual property. Furthermore, to the extent that states can enforce their intellectual property rights against competitors but need not fear infringement suits themselves, states have an additional competitive advantage." July 2000 Hearing, at 12 (statement of Howard L. Berman, member Subcommittee on Courts and Intellectual Property).

89 Cong. Rec. S7480, June 5, 2003.

90 Id.

91 *U.S. Government Accounting Office, State Immunity in Infringement Actions*, GAO-01-811 (2001) (hereafter "GAO Report") (available at: http://www.gao.gov).

92 GAO Report, at 2.

93 Register of Copyrights Marybeth Peters presented these possible approaches to the House Subcommittee on Courts and Intellectual Property at the July 2000 Hearing. See July 2000 Hearing, at 56-64. Peters also identified two additional approaches: Congressional enforcement under section 5 of the Fourteenth Amendment, and the approach embodied in Senator Leahy's bills. She expressed support for the approach in the Leahy bills. See July 2000 Hearing, at 64.

94 The 1999 version of the bill, S. 1161 (106th Cong.), required waiver before a state could obtain a patent or the registration of a copyright or trademark.

95 S. 1191, 108th Cong. §3. Because S. 1191 and H.R. 2344 are parallel bills, only the citations for S. 1191 will be provided here.

96 Id.

97 Id. §§4, 5. A state's waiver of its immunity would not affect the applicability of these provisions to the state.

98 Id. §3.

[99] Id.

[100] Id.

[101] Id.

[102] See *Sovereign Immunity and the Protection of Intellectual Property*, Hearing before the Senate Committee on the Judiciary, 108th Cong. (2003) (statement of William E. Thro, general counsel, Christopher Newport University, and special assistant attorney general, Commonwealth of Virginia), available at http://www.nacua.org/documents/IP_Restoration_Act_Statement-Thro.htm.

[103] *South Dakota v. Dole*, 483 U.S. 203 (1987).

[104] 359 U.S. 275 (1959). Article I, §10, cl. 3 of the Constitution prohibits states from entering into compacts with one another without the consent of Congress.

[105] E.g., *New York v. United States*, 505 U.S. 144, 166 (1992) (Congress may "hold out incentives to the States as a method of influencing a State's policy choices"); see generally July 2000 Hearing, 100-112 (statement of Howard J. Meltzer, Harvard Law School).

[106] *College Savings*, 527 U.S. at 680.

[107] Id. at 686.

[108] Id. at 687.

[109] Cf. *New York v. United States*, 505 U.S. 144 (1992) (Congress violates the Tenth Amendment by compelling state legislatures to adopt laws or state agencies to adopt regulations).

[110] Some states, such as Washington, have broadly waived their immunity and subjected themselves to the same liability in their own courts as may be found against individuals and corporations. Wash. Rev. Code 4.92.090. Other states, such as Pennsylvania, assert sovereign immunity with such exceptions as the legislature may declare. 1 Pa. C.S. §2310.

The University Inventor's Obligation to Assign: A Review of U.S. Case Law on the Enforceability of University Patent Policies

Naoko Ohashi, J.D.

Abstract

Until recently, it has been unclear under U.S. case law whether university patent policies were sufficient to obligate university personnel to assign their inventions to the university without a signed invention-assignment agreement. This paper examines the question through recent case law. These cases indicate a trend in support of university claims that patent policies alone may be sufficient to require assignment under certain circumstances. In addition to discussing the sufficiency of patent policies to obligate faculty to assign, this paper also considers the applicability of patent policies to students.

Introduction

As a general rule, when an inventor conceives or reduces to practice an invention during the course of employment, the inventor, under U.S. patent law, owns the patent rights to the invention.[1] The mere existence of an employer-employee relationship does not of itself entitle the employer to an assignment of any rights to an employee's invention made during the period of employment.[2]

There are, however, two important exceptions to the general rule.[3] An employee must assign patent rights to the employer if (1) the employee was initially hired or later directed to solve a specific problem or to exercise an inventive skill or (2) the employee signed an agreement to assign his or her patent rights. It is always recommended that an employer-university execute with appropriate employees an invention-assignment agreement to

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clarify ownership of inventions.[4] This article comments on the situation that arises when neither of the exceptions to the general rule is present.

In many universities, patent policies are properly disseminated widely by the administration.[5] A patent policy is distinguishable from a contractual agreement that an employee may sign when employment is commenced. A definition of the term *patent policy* must include consistency with applicable state law in the case of public universities, as well as the typical round of approvals required for a patent policy to be made effective, for example, approval by the faculty senate and the board of regents. A university's patent policy is expected to be an enforceable legal document that is intended to bind its employees in their inventive activity. Patent policies usually include statements indicating the circumstances under which university employees have a duty to assign rights in any invention to the university and are often accompanied by agreements to assign, which university employees are required to execute.

On the other hand, many universities do not require employees to execute any agreement to assign rights to the university. In those cases, it is unclear whether university employees are bound by the university's patent policies and, thereby, obligated to assign rights to inventions to the university absent an agreement to assign. Additionally, due to the ever-changing mix of individuals on a university campus including not only faculty but also staff, students, and visiting scholars, it is unclear to whom a policy may apply.

This paper examines several cases in which universities are litigants in an attempt to analyze the enforceability and applicability of a university's patent policy when there is no agreement to assign executed. Factors arguing in favor of an inventor's right of ownership are also discussed.

Kligman: Problems of Implied Contract by University Patent Policy

University Patents Inc. v. Kligman[6] is an early case that extensively analyzes the effect of a patent policy articulated in the plaintiff-university's faculty handbook. Albert Kligman, M.D., Ph.D., the inventor and defendant, discovered a preparation to retard the effects of photo aging of the skin when he was a tenured professor at the University of Pennsylvania School of Medicine. The University of Pennsylvania (Penn) set out its patent policy in its faculty handbook, which stated "Any invention or discovery that may

result from work carried out on university time or at university expense by special grants or otherwise is the property of the university. The inventor shall assign his interest in the patent application to the university. The university will exercise its ownership of such patent." The policy applied to "all members of the staff of the university whether fully or partially affiliated." Penn's policy required that "all personnel who may be involved in research must execute a patent agreement." However, Dr. Kligman had never signed the patent agreement.

In arguments at trial, Penn primarily relied on the patent policy to enforce an implied contract to assign. Dr. Kligman asserted that there was no binding agreement obligating him to assign his patent rights to Penn. He further claimed that Penn's patent policy was never sent to him, and, therefore, he did not know of the patent policy. There was evidence, however, indicating the contrary. The court denied Dr. Kligman's motion for summary judgment. The court held that, despite the absence of a signed agreement, a jury reasonably could find that an implied contract to assign the patent in question was formed between Dr. Kligman and Penn as a consequence of the university's policies and Dr. Kligman's knowledge of them.

The court's ruling in *Kligman* implies that a university patent policy residing in a handbook may create an implied contract even without a signed contract to assign. However, it remains unclear to what extent a patent policy alone has the power to bind the faculty member to assign title of an invention to a university. In addition, *Kligman* is silent as to the rights of a graduate student or a university employee other than a faculty member who may have assisted a faculty member or may have made an invention while matriculating in a graduate program under the supervision of a faculty member.[7] The patent policy in *Kligman* is unclear in its language, "staff fully or partially affiliated," whether, in particular, a graduate or undergraduate student is subject to university patent policy.

The cases cited in *Kligman* provide further clarity regarding a university faculty inventor's duty to assign. Among these, *Dubilier*[8] is notable and is frequently cited for the principle that, unless there is a contract to the contrary or a hired-to-invent employment status exists, an individual owns the patent rights of an invention conceived or reduced to practice during the course of employment. Notwithstanding that ownership right, the employer

may have a nonexclusive and nontransferable royalty-free license (i.e., shop right) to use the employee's patented invention.

Kligman left many questions unanswered regarding the duty of other university employees and students to assign their patent rights to universities. Recent cases have provided some clarity regarding obligations to assign patent rights. The more significant of these cases are discussed below.

Study of Cases: Recent Tendencies to Resolve Kligman Issues

In a case from more recent times, *Chou v. University of Chicago and Arch Development Corp.*,[9] a 2001 case, plaintiff Joany Chou, Ph.D., was a graduate student and subsequently a postdoctoral research assistant at the University of Chicago (UChicago). Inventorship and ownership of patents filed during her employment at UChicago were in dispute. At trial, Dr. Chou asserted that she was not obligated to assign her inventions to UChicago. She had never signed a contract with UChicago specifically obligating her to assign her inventions to UChicago. UChicago's faculty handbook, however, specifically referred to UChicago's patent policy. UChicago's patent policy provided that "every patentable invention or discovery that results from research or other activities carried out at the university, or with the aid of its facilities or funds administered by it, shall be the property of the university, and shall be assigned, as determined by the university, to the university, to an organization sponsoring the activities, or to an outside organization deemed capable of administering patents." Although the faculty handbook included the statement that "the contents of this handbook do not create a contract or agreement between an individual and the university," the handbook also stated that "the basic terms and conditions of the employment agreement are set out in the letter of appointment received from the provost's office." Dr. Chou's academic appointment letter stated that her appointment was subject to the administrative policies of the university.

The *Chou* court held that, although Dr. Chou never specifically agreed to assign her rights in the inventions to the university, Dr. Chou indeed accepted her academic appointment and, thereby, assumed the obligations set out in the university's policies. The court did not discuss whether the language of the policy covered Dr. Chou's position in the university, but the

policy language was found to be sufficiently broad to include Dr. Chou, acting as a graduate student or research assistant, in a fact situation she did not dispute, that is, that she made the invention while employed by the university. The court took into consideration that Dr. Chou did not dispute her obligation to assign other inventions for which she was a recognized inventor in concluding that she was obligated to assign the inventions in dispute to the university.

In *University of West Virginia Board of Trustees v. Van Voorhies*,[10] a 2002 case, defendant graduate student Kurt VanVoorhies, Ph.D., invented a contrawound toroidal helical antenna (the first invention) while conducting research at West Virginia University (WVU) for his doctoral dissertation. He executed an assignment (the first assignment) for the patent application directed to the first invention, and, thus, assigned all his rights in the first invention to WVU. The first assignment also explicitly stated that it extended to any continuation-in part (CIP) application.

Dr. VanVoorhies subsequently invented a half-wave bifilar contrawound toroidal helical antenna (the second invention) that he claimed was an independent and distinct invention. The record is unclear with respect to whether he was or was not receiving a salary or other stipend from the university when he made the second invention. In its ruling, however, the court relied on a rationale independent of the existence of an employer-employee relationship during the time of the second invention. Although he disclosed the second invention to WVU, Dr. VanVoorhies failed to respond when WVU sent to him the declaration and corresponding assignment for the patent application directed to the second invention. WVU nevertheless filed the patent application as a CIP application of the first invention. Meanwhile, Dr. Van Voorhies prepared and filed, at his own expense, a patent application directed to the second invention. WVU's and Dr. VanVoorhies' patent applications thereafter matured into issued patents. WVU claimed that Dr. VanVoorhies was obligated to assign to WVU the patent rights for both the CIP application by WVU and his own privately filed application, but Dr. VanVoorhies steadfastly refused. With respect to the CIP application, the court held that Dr. VanVoorhies was required to assign the patent rights because the first assignment that he executed explicitly obligated him to assign the patent rights of the CIP application, even though he refused to execute the assignment for the CIP application.

With respect to the patent Dr. VanVoorhies filed privately, the issue was whether he was obligated to assign to WVU the patent rights directed to the second invention based upon WVU's patent policy. The policy stated that "the university owns worldwide right, title, and interest in any invention made at least in part by university personnel, or substantial use of university resources, and, unless otherwise agreed, this policy applies to any invention conceived or first reduced to practice under terms of contracts, grants, or other agreements." WVU's policy applied to all "university personnel" who are defined as "all full-time and part-time members of the faculty and staff and all other employees of the university including graduate and undergraduate students and fellows of the university."

The court held that any inventions made by Dr. VanVoorhies pursuant to his graduate studies should rightfully belong to WVU. The court reasoned that the policy broadly applied to all "university personnel," which included graduate students as defined. The court cited *Chou* indicating that graduate students were obligated to assign inventions to a university under a patent policy even absent a signed contract requiring such assignment. Dr. VanVoorhies argued that he was not affiliated with WVU when he conceived the second invention, because the second invention was made during the two-month period between the award of his doctorate and the beginning of his postgraduate research assistantship. The court, in rejecting this assertion because there was no supporting evidence except his self-serving logbook, found that the second invention was conceived while he was a student. The court also rejected Dr. VanVoorhies' assertion that he did not know the policy applied to him, because his supervisory professor, James Smith, Ph.D., testified that he personally discussed the matter with Dr. VanVoorhies. In addition, Dr. VanVoorhies had assigned the patent rights of the first invention and other unrelated inventions.

In another recent case, *E.I. Du Pont de Nemours and Co. v. Okuley*,[11] defendant John Okuley, Ph.D., was working as a postdoctoral researcher at Washington State University (WSU) under John Browse, Ph.D., on a project sponsored by Du Pont. Dr. Browse executed a research collaboration agreement with Du Pont, which was approved by WSU. Under Dr. Browse's direction, Dr. Okuley tried to isolate the FAD2 gene by using a low-stringency-probe process, but his attempts were unsuccessful. Later, Dr. Okuley relocated to Ohio and continued his research at Ohio State University (OSU)

by obtaining visitor access to OSU's facilities while still employed by WSU. In Ohio, while he was still under the supervision of Dr. Browse, he discovered and isolated the FAD2 gene and proceeded to clone it by using a method different from that suggested by Dr. Browse. The question became who owned the patent rights to the FAD2 gene.

An Ohio statute, the *WSU Faculty Manual* including its patent policy, and a research collaboration agreement between Du Pont and WSU potentially affected the vesting of ownership rights of the FAD2 gene in Dr. Okuley. The Ohio statute stated that "all rights to and interests in discoveries, inventions, or patents which result from research or investigation conducted in any ... facility of any state college or university ... shall be the sole property of that college or university."

Ohio State law and the Du Pont contract with WSU were in conflict. The conflict was explicitly framed when Dr. Okuley discussed the matter with OSU's Intellectual Property Office and WSU's chief intellectual property officer. There appears to have been some thought given to resolving this conflict because sometime after Dr. Okuley had moved to Ohio, Dr. Browse and a Du Pont attorney had discussed the advisability of Du Pont, WSU, and OSU entering into an agreement concerning patent rights. Unfortunately, no such agreement was ever executed. After the conflict became unavoidable, OSU waived its right to take title to the invention.

The court held that, because Dr. Okuley used OSU's facility, OSU would have a legitimate claim to sole ownership of the invention. WSU's patent policy, as published in its *Faculty Manual*, stated that, "unless otherwise agreed with an outside sponsor, the university shall own the right to all patentable property developed as a result of university employment." Both parties agreed that Dr. Okuley, as an employee of WSU, was bound by the terms of the *WSU Faculty Manual* and the patent policy contained within it. The research collaboration agreement executed by Dr. Browse provided for assignment of all right and title of ideas and improvements to Du Pont. However, Dr. Okuley had not executed that agreement. Applicability of the research collaboration agreement to Dr. Okuley without express agreement, and, therefore, whether Dr. Okuley was obligated to assign the patent rights of FAD2 to Du Pont, was the issue in dispute. The court held that even though the research collaboration agreement did not specifically obligate Dr. Okuley to assign his rights in a patentable invention to Du Pont, the

WSU patent policy did. In other words, the patent policy obligated Dr. Okuley to assign his rights to WSU, and the research collaboration agreement obligated WSU to waive those rights in favor of Du Pont when WSU approved the research collaboration agreement.

In defense of Dr. Okuley's refusal to assign, he argued that, because the FAD2 gene was discovered using a research method contrary to that specified by his supervisor, the discovery was made outside of the scope of his duty to assign. However, the court found this argument meritless because his achievement was precisely the goal set forth in the research collaboration agreement, and the particular method by which he accomplished the desired result was not deemed to be of critical importance.

The court's decision in *Du Pont* suggests that university policies and legal statutes will apply automatically to a university-employee inventor, at least when there is no dispute based on the inventor's employee status or the use of university's facilities. However, while the courts may direct the enforceability of a patent policy, the absence of a written agreement can raise other issues, for example, the applicability of multiple conflicting rules.

When no signed invention-assignment agreements are in place, employee inventors who are effectively hired to invent, acquire, in equity or at law, no interest in their inventions that can be exercised against third parties. In an early case, *Speck v. North Carolina Dairy Foundation Inc.*,[12] the plaintiff, a university faculty employee engaged in teaching and research, as a result of experiments and study conducted at the University of North Carolina (UNC), developed important new procedures and technology with applications in the dairy industry in the manufacture of sweet acidophilus milk. The record suggested that North Carolina Diary Foundation Inc. had a long history of maintaining a close relationship with UNC and providing funds in support of research. It was undisputed that the plaintiff performed the work on university time using university research resources and was paid a salary to do so. A decision was made, after the plaintiff routinely took the new process before the University Patent Committee, that a trademark would be registered identifying the foundation, the commercial entity selected by UNC for development and marketing of the technology, as owner. Although UNC's patent policy neglected to address trademark matters, a 15 percent royalty share was proposed for the plaintiff, the same rate depart-

mental faculty enjoyed on patent licenses. However, no royalty income was ever paid to the plaintiff.

The plaintiff brought suit seeking to impose a constructive trust upon royalties received by the defendant. In reversing the court of appeals, the Speck court cited *Houghton*[13] for the proposition that the process developed through the research of the plaintiff belonged to the university absent a written contract by UNC to assign. The plaintiff was found to have never had any equitable or legal interest in the process that he developed while employed by UNC, and, the foundation did not stand in a fiduciary relationship to the plaintiff with regard to that which UNC fully at all times owned. In exercising wide discretion in favor of the nonprofit institutions, the court in dictum specifically noted that the university and the foundation were not dedicated to making and retaining profits, but instead to using their income for the good of the public by promoting and financially assisting scientific research for the common good.

The duty to assign and the obligation of confidentiality are intertwined and, when properly enforced, have been found to extend even to the undergraduate student. In egregious circumstances, criminal liability also can be attached. In *University of South Florida v. Taborsky*,[14] the university successfully brought an interlocutory appeal from an order that had denied the university its request for civil injunctive relief against appellee, a former student, after his criminal conviction and the violation of his probation. The University of South Florida (USF), in a contract for sponsored research, had covenanted to keep research proprietary and confidential. The student, as an undergraduate research assistant, worked on the research project and properly entered into the confidentiality agreement to protect and not exploit the proprietary information. The return of all related documents at the conclusion of the project was a condition.

The student subsequently left USF and took with him laboratory notebooks containing the proprietary and confidential research and refused later to respond to repeated requests for the return of the notebooks. He was convicted of theft of trade secrets. As a condition of probation, the judge expressly prohibited the student from using the stolen research for any purpose. In violation of his probation, the student obtained a patent that was related to the research he had stolen from USF. The criminal court revoked his probation and directed him to assign his patent to the university as resti-

tution. USF, under its claim of ownership of all of the research, filed a civil action seeking to enjoin the student from using the protected research for his own benefit. The Court of Appeals for the Second District of Florida concluded that USF was entitled to the injunctive relief it requested. The criminal court order prohibited the student from any further use of the stolen research.

The Aftermath of *Kligman*

As discussed above, the cases that have been decided since *Kligman* provide some clarity regarding the obligation of university faculty, employees, and students to assign patent rights to the universities by whom they are employed. The aftermath of the *Kligman* case itself was not so clear because the matter apparently settled out of court.

After the motions for summary judgment in *Kligman* were denied, litigation ensued. The university sought royalties allegedly owed by the defendants for technology development and a declaration of ownership in the patent rights. Dr. Kligman moved for summary judgment on both the university's tort and contract claims. The court rejected the university's claims for tortious interference, but only on statute-of-limitations grounds. The university's motion for declaratory judgment on its claim to ownership was denied pending the jury's findings on the claim for breach of contract.[15]

Following two hearings of procedural motions,[16] the court eventually denied the university's motion to dismiss the professor's motion for a declaration that no version of the university's patent policy constituted a legally binding contract.[17] At this point, the parties apparently reached an agreement out of court, and the issue of contract enforceability thus was not litigated. The case has been cited for the proposition that employment handbooks outlining terms of tenure could be used to create a preinvention assignment agreement.[18] As well, the case has been cited for the proposition that courts have interpreted *hired to invent* narrowly, giving the benefit of the doubt to employees rather than employers.[19] The majority rule appears to be that a clear writing is all that is required to precipitate an obligation to assign. Although the university and Dr. Kligman apparently found it wise to settle out of court, the result was probably an anomaly.[20] In the end, what may be most important is that the university's claim of ownership survived Dr. Kligman's motion for summary judgment.[21]

Lessons from the Case Law: Power of Patent Policy

Kligman and its line of cases indicate that a separate assignment agreement is not a critical requirement for a university to require assignment of patent rights to an invention made by a matriculating assistant researcher or university graduate student.

Rather, the courts tend to recognize that a patent policy binds university's postdoctoral researchers and graduate students without an explicit assignment agreement. Generally, two conditions strengthen the enforceability of a patent policy. Condition (1), the policy language is relatively clear that the inventors are covered by the policy, and, condition (2), there is some evidence that the inventors have knowledge as to the applicability to them of the patent policy.

With respect to condition (1), the language of the policy in *Chou* was broad enough and her letter of appointment explicitly referred to the policy. Thus, her acceptance of her position effectively made it clear that she was subject to the university's patent policy. In *VanVoorhies*, the policy language explicitly stated that a graduate student was subject to the university's patent policy. Further, in *Du Pont*, the applicability of WSU's policy was not in dispute because the policy explicitly stated that it applied to employees, and Dr. Okuley was an employee of WSU.

With respect to condition (2), it seems that the *Chou* court relied on the fact that Chou assigned several inventions to the university indicating that she was aware of and conceded her obligation to assign. In *VanVoorhies*, the court rejected Dr. VanVoorhies' assertion of ignorance of the policy applicability because of his assignment of previous inventions and his supervisor's contrary testimony. Thus, a course of conduct can constitute a heavy evidentiary burden for a plaintiff-inventor to overcome.

In spite of the court's tendency to recognize contracts implied by patent policy, a written assignment agreement is still recommended to avoid potentially conflicting situations as illustrated by *Du Pont*. The finding of an implied contract will not help to solve a problem of this complexity. In *Du Pont*, the applicability of both WSU's policy and the Ohio statute to Dr. Okuley was not in dispute while there was no written agreement. However, when multiple organizations are involved, multiple policies (or statutes) can automatically make an implied contract between an inventor and multiple organizations. Those conflicting implied contracts cannot be avoided with-

out a properly executed assignment agreement. After OSU freely waived its right, the solution to the dilemma became much simpler. However, it is obvious that the litigation occurred due to the absence of a written contract between Du Pont, WSU, and OSU.

Recent cases tend to show that the additional reasons inventors often offer to defend their refusal to assign patent rights to a university, a sponsor, or an employer fall into three general categories: (1) ignorance, (2) scope, and (3) nonaffiliation. These defenses seem to be ineffective.

In category (1), inventors claim they were ignorant of the policy's application to them or did not understand the consequences of the execution of the assignment contract. As described above, the finding of notice strengthens the enforceability of the patent policy. As illustrated in *Kligman* and *VanVoorhies*, courts seem to give weight to the evidence contrary to a claim of ignorance. Other court decisions imply the same result. For example, the court in *Carroll Touch Inc. v. Electro Mechanical Systems Inc.*[22] rejected the inventor's defense of mistake in the face of an assignment agreement because he was considered an intelligent, well-educated, and sophisticated individual who was fully capable of reading and comprehending the agreement at the time it was executed.

In category (2), inventors discover the invention by using a method outside the scope of a sponsorship agreement. As illustrated in *Du Pont*, the court takes notice that an inventor was given autonomy to decide how to best achieve the desired result. The result in *Teets v. Chromalloy*[23] was similar, where the court found that the method originally recommended in the project (as instructed by the supervisor) failed, and a completely different method was developed to produce the target product.

In category (3), inventors are not affiliated/hired when they conceive/develop the invention (i.e., invented outside of employment). As shown in *VanVoorhies*, the court rejects self-serving evidence and requires collaborating evidence for proof. It appears that it can be difficult for inventors to prove that inventions are made while they were not affiliated.

In the line of cases presented, tension existed between, on the one hand, inventors trying to avoid the university policy or an assignment agreement, and, on the other hand, the university asserting an implied contract based upon a patent policy to capture the invention for its patent portfolio. In the

cases cited, it seems that, generally speaking, courts may view the arguments of university litigants more favorably, although the decisions are highly dependent on the facts. It appears that claiming ignorance of policy carries a heavy burden of proof, and the scope of the work (both in terms of time and method) undertaken by the inventor will be broadly interpreted by the court.

Conclusion and Recommendations

In light of the interpretations of the law laid down by the courts, universities should take extraordinary precautions to strive for clarity in obligation to assign for faculty, staff, and students. Benefits will accrue thereby to the university both in terms of good public relations and the avoidance of costly and time-consuming litigation. At a minimum, the patent policy should be written to include all likely inventors on campus. Such clear language will help to avoid a later dispute. Furthermore, a university is advised to clearly give notice of its patent policy to university personnel, in particular, to students, when it may be logistically difficult to obtain a signed agreement. This precaution may overcome a later asserted defense of ignorance.

Specific precautions typically should include a requirement that all employees, visiting professors, staff, and graduate students sign a clearly articulated employment agreement and be unequivocally informed of the university's intellectual property policy currently in effect at the time of their involvement with the university. This step is extremely important when multiple organizations are involved. University employees should be notified in a memorandum properly distributed annually that the creation of intellectual property is to be faithfully reported, inventions must be disclosed, and the subject matter referred to in the intellectual property policy manual is by right the university's property. Any royalty sharing term of the policy should be clearly explained to employees.

Acknowledgement: This paper has grown out of an academic assignment, and the author is deeply indebted to Professor Karen Hersey at the Franklin Pierce Law Center, Concord, New Hampshire.

Notes

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2 *United States v. Dubilier*, 289 U.S. 178 (1933).

3 Chisum, supra note 1

4 Stanley Lieberstein, "Relevant Concepts in Determining Difficult Disputes over Ownership," *AUTM Journal*, 10 (1998).

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6 *University Patents Inc. v. Kligman et al.*, 762 F.Supp. 1212 (1991).

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8 *United States v. Dubilier*, 289 U.S. 178 (1933).

9 *Chou v. University of Chicago and Arch Development Corp.*, 254 F.3d 1347 (Fed. Cir. 2001).

10 *University of West Virginia Board of Trustees v. VanVoorhies*, 278 F.3d 1288 (Fed. Cir. 2002).

11 *E.I. Du Pont de Nemours and Co. v. Okuley*, 2000 U.S. Dist. LEXIS 21385 (2000).

12 *Speck v. North Carolina Dairy Foundation Inc.*, 311 N.C. 679.

13 *Houghton v. United States*, 23 F. 2d 386 at 391 (1928).

14 *University of South Florida v. Taborsky*, 648 So. 2d 748.

15 *University Patents Inc. v. Kligman*, 1991 U.S. Dist. LEXIS 5429 (E.D. Pa. Apr. 22, 1991).

16 *University Patents Inc. v. Kligman*, 1991 U.S. Dist. LEXIS 6663 (E.D. Pa. May 16, 1991); *University Patents Inc. v. Kligman*, 1991 U.S. Dist. LEXIS 11419 (E.D. Pa. Aug. 14, 1991).

17 *University Patents Inc. v. Kligman*, 1991 U.S. Dist. LEXIS 11917 (E.D. Pa. Aug. 23, 1991).

18 Sandhip Patel, "Graduate Students' Ownership and Attribution Rights in Intellectual Property," *Indiana Law Journal* 71 (1996): 481.

19 Sunil Kulkarni, "All Professors Create Equally: Why Faculty Should Have Complete Control over the Intellectual Property Rights in their Creations," *Hastings Law Journal* 47 (1995): 221.

[20] "On the first question, the cases confronting this issue state that writing is always required in order to have a transfer of patent ownership. There is a small group of cases (i.e including the *Kligman* case) that indicate that a writing is not required between the parties to the assignment, but these pronouncements are only dicta." Robert A. Kreiss, "The "In Writing" Requirement for Copyright and Patent Transfers: Are the Circuits in Conflict?" *University of Dayton Law Review* 26 (2000): 43.

[21] "Often the obligation to assign is expressed in a form contract—in the university context, for example it can be set out in the employee handbook and then incorporated into faculty contracts by reference. Such contracts are usually considered enforceable even though negotiation can be quite minimal." Rochelle Cooper Dreyfus, "Collaborative Research: Conflicts on Authorship, Ownership, and Accountability," *Vanderbilt Law Review* 53 (2000): 1162.

[22] *Carroll Touch Inc. v. Electro Mechanical Systems Inc.*, 15 F.3d1573 (1993).

[23] *Teets v. Chromalloy*, 83 F.3d 403.

Using the Industry Model to Create Physical Science Patent Pools among Academic Institutions

Randall Parish
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Abstract

Patent pooling, a common practice in the corporate world, is rare among universities. However, patent pools offer compelling benefits to universities and licensees. Physical science pools hold particular promise, due to the difficulty of commercializing a lone physical science technology.

Despite certain logistical challenges, universities are fully capable of building successful patent pools. This paper discusses the advantages of patent pooling, presents an outline of an illustrative university patent pool, and offers suggestions for overcoming the typical obstacles to such an endeavor.

Introduction: The Industry Patent Pool Model

A *patent pool*, as defined in this paper, is a licensable group of patents belonging to two or more organizations. In the past, the term has been used to describe a collection of intellectual property (IP) that is simply shared between contributing organizations, but it increasingly connotes commercialization. Some pool agreements include provisions for shared rights among members, as well as license agreements for nonmembers.

Today, patent pools are most common in the electronics industry, where standards bodies play a key role in determining which technologies are embraced by industry. Technology standards are rarely created from a single company's research. Typically, a group of companies is involved, either through alliances or independent but parallel research, in the development of a new technology that takes a lead on competing offerings and is poised

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for mass adoption. The companies, whenever possible, will ask the appropriate standards body to formally recognize the technology.

A technology does not achieve marketplace success simply because it has been labeled a standard. In addition to the usual challenges surrounding new product launches, companies involved with technology standards often encounter IP issues on the path to commercialization. Several companies, for example, may have fundamental IP without which the standard cannot legally be implemented; anyone wanting to use the technology would have to acquire rights to each core patent.

Patent pooling is appropriate for IP holders in these situations. First, pools offer licensees the ability to obtain full access to the technology via a single nondiscriminatory agreement, a far more attractive scenario than negotiating separate licenses with each holder. Second, deep market penetration is required if any technology is to become a true standard, and a convoluted IP acquisition process can drastically slow adoption and may even allow a competing technology to build momentum and capture the market.

The Moving Picture Experts Group (MPEG), a consortium of engineers working on digital video, faced these issues in the early 1990s. The organization believed it could create a ubiquitous digital video compression format, but the fundamental IP was scattered among numerous entities, including competing industry heavyweights Sony, Philips, and Matsushita (Panasonic). Setting aside their competitive tendencies, the core patent holders agreed to pool their IP. The MPEG digital video standard was born, and the members formed a company, MPEG LA, to market and license the technology.

The MPEG pool has been hugely successful and is regarded as a landmark in the history of industry IP management. Contributors to the portfolio have grown from eight original members to twenty-two, and the portfolio currently encompasses more than 500 patents.[1] MPEG LA does not publish its revenues, but based on the license agreement's royalty rates and the number of digital video devices sold, it is safe to surmise that the pool has generated hundreds of millions of dollars in licensing income. It is important to emphasize that the management of the MPEG IP has been as critical to the standard's success as has the technology itself.

From the university technology transfer perspective, the MPEG story is notable because Columbia University is an original member. The pool gen-

erates millions of dollars in annual royalties for the university. Of course, everyone would love to participate in developing a wildly profitable technology standard, but exceedingly few nonprofit institutions are likely to have the right patent at the right time.

Although a standards-based pool may be ideal, it is very unlikely that universities would have the complementary IP to create a viable industry standard. However, universities do have excellent opportunities to build their own patent pools that are not based on standards. While the motivations for building such patent pools would be different from those driving electronics titans to create standards-based pools, valuable lessons from the industry approach can be applied to university patent pools. By following the industry lead and leveraging synergies among institutions, university patent pools provide a real opportunity to generate meaningful revenue from patents that might otherwise produce little or no income individually.

The Advantages of Pooling

The primary reason universities should form or join a patent pool is that commercializing a single technology—particularly a physical science technology—for even a modest sum, is typically quite difficult. According to one analysis of university licensing trends, the physical sciences account for only 14 percent of the total licensing income in the academic arena.[2]

Only rarely does a lone physical science patent fulfill a critical industry need; often the technology addresses only part of the required solution.[3] Sometimes even patents that have stand-alone commercialization potential fail to find industry homes due to the challenge of identifying and approaching the right audience.

A portfolio's strength is characterized by *breadth* and *depth*, and strategically built pools enable licensees to bolster their portfolios in one or both areas. *Breadth* refers to the range of represented technology categories, while *depth* refers to the number of patents within a given category. A pool consisting only of semiconductor device patents, for example, would provide depth, while another pool that combined the semiconductor patents with complementary technologies in related categories (such as chemical vapor deposition, metrology/lithography, optics, and semiconductor laser patents) would deliver depth and breadth. Either pooling strategy can be very successful. With the vast number of available university patents, motivated

technology transfer offices should be able to design an attractive pool for most IP-intensive markets.

The true value of aggregated IP varies, of course, with the quality and quantity of the patents and the needs of the target customers. But at the very least, pools offer numerous partial solutions to industry problems, and the best pools may *completely* address many needs.

Patent pools leverage not only the strength of the aggregate technologies, but also the combined marketing resources of the members. Several marketing strategies are discussed below, but it is worth emphasizing that every participating institution has a financial incentive to market the pool. Even if a target company declines to license an entire pool, it may pursue a license to a subset of the patents.

Patent pools also provide a way to showcase universities, departments, and faculty. Assuming a pool is marketed properly, every relevant industry player will be made aware of the research centers that generated the IP. (The universities, by virtue of membership in the pool, signal an eagerness to commercialize.) These companies likely will know that some of the members have strong competencies in the given technology area, but may not be aware that other members are conducting similar research. Likewise, some faculty may be surprised to learn that certain companies are interested in the technology. Thus, pools will catalyze university-industry recognition and familiarity and may even lead to sponsored research agreements, development partnerships, or scholarships/internships.

Furthermore, building a patent pool will lead to stronger relationships between technology transfer offices and provide a foundation for further interinstitutional endeavors. Also, in the process of identifying schools with the desired patents for a certain pool, ideas for pools focused on entirely different technologies may arise.

Finally, good technology has a tendency to spread throughout the target industry, and patent pools speed this propagation. Suppose, for example, a microscope manufacturer becomes the first licensee of a university microscopy pool and proceeds to develop a lucrative line of microscopes that is superior to anything else on the market. The success of the new product likely will drive other manufacturers to take a license to remain competitive. The advantage of a patent pool is that all competitors can access the same technology at the same price in a convenient one-stop shopping format.

From the industry perspective, patent pools represent enormous design freedom and litigation avoidance. Very few, if any, companies will take a license intending to use each patent, but the latitude to do so can be quite valuable. During the course of a design project (or, in some cases, after the product is already on the market), engineers may discover that a product infringes on someone else's IP. The ability of the engineers to sidestep the infringement issue without substantially reworking the product depends, to a great degree, on the technology rights available to them. A pool licensee has the comfort of knowing its engineers can, in many cases, avoid costly design overhauls by shifting their work from Technology A to Technology B as needed—without infringement concerns—even though the company never planned to use Technology B when it licensed the portfolio.

Litigation avoidance goes hand in hand with this design freedom. In high-tech industries, large companies usually have sizable R&D budgets that spawn powerful IP estates. These companies often have formal IP organizations to manage their assets and closely monitor competitors for infringement. (Texas Instruments, Lucent Technologies, and Motorola are salient examples.) A patent pool license, and the design freedom that comes with it, can serve as a kind of litigation insurance and greatly diminish the threat of assertion by another firm. In fact, a large pool can come close to, or even surpass, the dominant firm's holdings in the key technology categories. In other words, with a single license agreement, a company with a relatively small IP estate may be able to acquire rights to a portfolio that immediately makes the company an IP leader in the industry.

Perhaps a pool's most compelling benefit to licensees is the ability to obtain quality, market-specific technologies for a fraction of what it would cost to develop the patents internally. The typical ratio of R&D dollars to intellectual assets varies among companies and industries, but $2 million to $3 million per patent is a fair estimate for the high-technology sector. Therefore, depending on the size of the pool, universities could charge from a few hundred thousand dollars to several million dollars for a paid-up license to the aggregate IP—a significant sum for the universities and an extraordinary value for the licensees. By acquiring rights to a portfolio for much less than it would cost to conduct the necessary R&D activities to generate the patents included in that portfolio, the licensee can then shift some of its R&D budget to other product-development areas.

Table 1 summarizes patent pools' benefits to universities and licensees.

Table 1
Benefits to Universities and Licensees

Benefits to Universities	Benefits to Licensees
Provides opportunity to generate revenue from patents that might otherwise produce little or no revenue.	Delivers access to quality patents for far less than it would cost to develop the technologies in house.
Offers flexibility to tailor a group of technologies (breadth and depth) to a specific industry, market, or problem.	Provides enormous design freedom.
Leverages the members' aggregate marketing resources.	Reduces assertion and litigation threats.
Showcases the participating institutions, departments, and faculty.	Efficiently bolsters breadth and depth of a portfolio.
Builds strong relationships among technology transfer offices and encourages other joint initiatives.	Leverages R&D at leading educational centers of excellence.
Facilitates quick and easy technology propagation.	Provides convenient, one-stop shopping.
Fosters recognition and familiarity between universities and industry.	

The University Model: Adopting Key Success Factors from Industry Pools

The best industry pools have three common characteristics that can be incorporated into any physical science university pool: a market opportunity focus, nondiscriminatory/nonexclusive licensing policies, and contribution-proportional revenue sharing. First and foremost, effective pools are geared to a true market opportunity, with a clear understanding of the key players in the market and the technologies on which those companies rest. Without appreciating the intricacies of the market, universities likely will have difficulty identifying the right patents to include in the pool and even more trouble determining an appropriate license fee.

Nondiscriminatory policies may seem obvious. However, some industry pools have come under government scrutiny for anticompetitive practices,[4] and a nondiscriminatory/nonexclusive license policy was one of several safeguards the Department of Justice required of the MPEG pool.[5] Simply stated, patent pools should foster competition, rather than hinder it.

In addition to satisfying anticompetitive regulations, a university pool crafted around a nonexclusive license structure enables the members to separately license their patents, as long as the agreements are also nonexclusive. Therefore, *a university has nothing to lose by joining a pool*, unless it contributes a rare home-run technology that could garner a large sum in an exclusive agreement elsewhere. (A university can sometimes spot a patent's home-run potential through marketing efforts early in the patent-prosecution process. Although the university may not want to add to a pool a technology that is generating great interest from potential licenses, it may have others that would be less risky to contribute.)

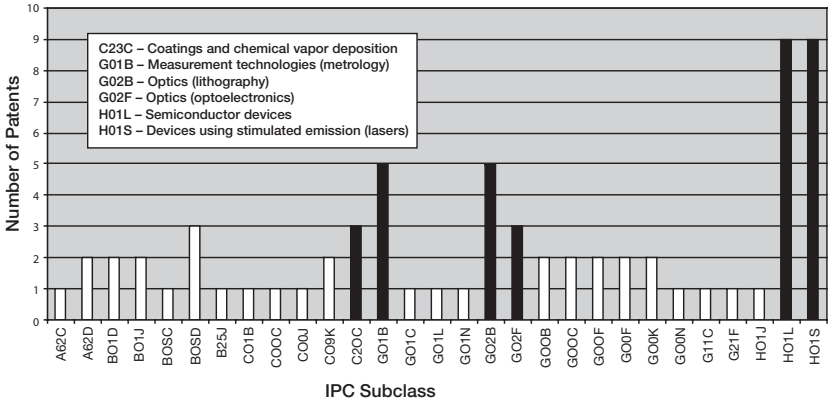
Revenue sharing has long been a major obstacle to patent pooling. For a variety of reasons, some institutions may believe their technologies are more valuable than those owned by other institutions and that their technologies would attract most of the pool's licensees. These institutions, therefore, may feel entitled to a larger portion of revenues. Such issues can completely undermine an otherwise excellent commercialization opportunity.

The best way to deal with the situation is to insist on contribution-proportional revenue sharing, where each licensor's revenue share is equal to its share of patents in the pool; if a university contributes 12 percent of the total pool, it will receive 12 percent of the revenues. This strategy worked for MPEG and can work for universities, too.

Building a University Patent Pool: Science & Technology Corp.'s Approach

With these success factors in mind, Science & Technology Corp. (STC), the University of New Mexico's technology commercialization arm, sketched out a hypothetical university patent pool. STC's licensable U.S. physical science patents were sorted by International Patent Classification (IPC) code subclass—a quick way to gauge a portfolio's breadth and depth. STC has some of the former, but not a great deal of the latter. Figure 1 depicts the organization's physical science portfolio as of February 2003.

Figure 1
STC's Licensable Physical Science Patents
February 2003



For the purposes of the illustrative pool, STC chose to focus on areas that have depth and are related in terms of industry application. The portfolio's obvious strengths are the H01L (semiconductor devices) and H01S (laser) patents, but STC also has multiple patents in the C23C (chemical vapor deposition), G01B (metrology), G02B (lithography), and G02F (optoelectronics) subclasses. Because technologies in these six subclasses—which are designated by the black columns in Figure 1—are used extensively by semiconductor firms and communications infrastructure companies, STC believes a university pool of such patents would have excellent commercial potential in those markets.

The next step was to identify other institutions that had meaningful holdings in one or more of the target subclasses. Using a subscription IP research service, STC acquired U.S. patent data on more than 90 schools, mainly large public universities. An IPC subclass analysis was conducted on the data, and the institutions were sorted by their total patents across the six technology categories.

Also, the results were filtered so that only patents published from 1996 through 2002 were considered. Narrowing the research to a seven-year period allowed STC to eliminate any schools that have stopped conducting or protecting relevant research. In addition, STC wanted to compare, as directly as possible, the hypothetical pool to the recent IP generated across the subclasses by two of the industry heavyweights.

Table 2 below shows the findings. Universities that did not publish at least ten patents in the selected subclasses during the seven-year window were dropped, leaving twenty-five schools—and 512 patents—in the pool.

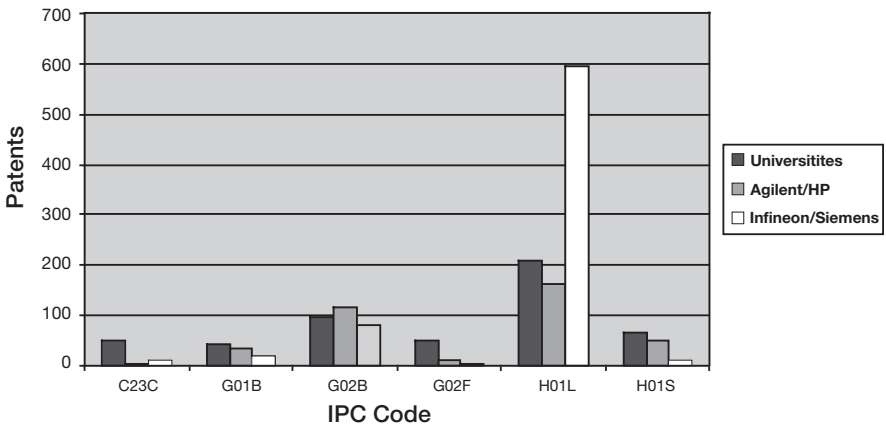
Table 2
Sample Pool Members and IP Distribution across Subclasses

Universities	**C23C**	**G01B**	**G02B**	**G02F**	**H01L**	**H01S**	**Total**
North Carolina State	0	0	3	0	42	0	**45**
Northwestern	8	1	2	4	11	6	**32**
University of Colorado	1	0	7	18	1	4	**31**
University of Michigan	0	2	6	2	12	8	**30**
University of Central Florida	0	6	4	2	2	13	**27**
University of Washington	0	0	23	0	2	0	**25**
University of Chicago	2	2	6	0	14	1	**25**
Penn State	3	5	0	0	15	0	**23**
University of Wisconsin	2	2	0	2	9	8	**23**
University of Texas at Austin	5	1	4	1	10	2	**23**
Georgia Tech	7	2	1	3	9	0	**22**
University of Illinois	0	0	1	1	15	5	**22**
University of New Mexico	3	2	5	1	4	5	**20**
University of Houston	2	0	2	0	13	1	**18**
Rutgers University	2	0	2	8	4	0	**16**
University of Southern California	2	0	7	0	5	2	**16**
Texas A&M	2	8	3	1	0	1	**15**
University of Minnesota	1	0	1	0	8	4	**14**
Duke University	0	1	6	4	1	1	**13**
University of Maryland, College Park	0	1	3	0	7	2	**13**
Virginia Tech	3	3	0	0	7	0	**13**
Boston University	4	0	0	1	7	0	**12**
Carnegie Mellon	0	1	4	2	5	0	**12**
University of Utah	2	3	5	0	0	2	**12**
Iowa State	0	2	1	0	6	1	**10**
Total	**49**	**42**	**96**	**50**	**209**	**66**	**512**

The numbers are not an exact representation of the patents the schools could actually contribute. Some of the technologies listed above may already have been licensed exclusively, others may have encumbrances that would prevent pooling, for example. Keep in mind, however, that each university holds more applicable patents than Table 2 indicates, because patents published prior to 1996 or after 2002 are not listed. STC, for instance, has thirty-four available technologies, but only twenty meet the date requirement. In short, Table 2 is probably a conservative estimate of the number of patents these institutions could, in reality, pool. But for the purposes of industry comparison, these 512 patents will be used as the hypothetical university pool. (Of course, some of these patents might fit together better than others, and a thorough review of the patents is recommended to determine specific clusters of complementary technologies within these 512 patents. The IPC subclasses are broad, and this review may help identify which full IPC codes seem to address the target markets and which do not. The patent pool builders can then use the selected full IPC codes as a second filter.)

The subclass analysis on U.S. patent data was repeated for semiconductor titans Agilent and Infineon Technologies, which were spun out of Hewlett-Packard and Siemens, respectively. Both companies were formed in

Figure 2
University Patent Pool Compared with Agilent and Infineon
(U.S. Patents Issued 1996–2002)



the midst of the seven-year focus, so STC gathered data on patents assigned to them dating back as far as possible, then incorporated relevant data from patents assigned to the parent companies to fill in the remainder of the time frame.

The collected university IP certainly holds it own against the portfolios of the industry leaders, as Figure 2 illustrates. In fact, the university portfolio has more depth than the companies have in most categories, with the exception of Infineon's tower of semiconductor device patents (although the portfolio is superior to Agilent's technologies in that space) and Agilent's narrow G02B edge.

As noted above, the aggregate IP would also be extremely enticing to the target companies because the universities could apply a license fee well below the actual value of the patents in industry R&D dollars. Table 3 shows recent R&D dollars to patent ratios for Agilent, Infineon, and Motorola. Assuming $2.5 million per patent—a conservative estimate for this industry—the university patent pool would be worth in excess of $1.2 billion in R&D expenditures. Of course, the asking price for a license to the aggregate IP would likely be a small fraction, perhaps 1 percent to 5 percent, of that value.

Table 3
Comparison of Industry IP Production with Respect to R&D

Agilent (2001–2002)	R & D	$2,449,000,000
	Patents	640
	$/Patent	**$3,826,563**
Infineon (2001–2002)	R & D	$2,201,850,000
	Patents	726
	$/Patent	**$3,032,851**
Motorola (1998–2001)	R & D	$15,208,000,000
	Patents	5141
	$/Patent	**$2,958,179**

Logistical Challenges: Answering Frequently Asked Questions

STC has had informal discussions with several institutions regarding patent pooling. The questions arising most frequently during these conversations deal not with the merits of patent pooling, but with the logistics of the endeavor. Some schools have considered various forms of pooling in recent years, but were unable to clear certain hurdles. Creating a patent pool, especially one with many members, is a challenging, time-consuming task. Therefore, it is important to keep the process—and the subsequent administration of the pool—as simple as possible. Here are a few thoughts on these logistical issues.

Who will administer the pool?

For most pools, one or more of the members should be capable of handling administration. A small, off-the-top percentage of each license fee could be given to the administrating institutions for compensation. For very large pools, the members could form a company to manage the pool. Alternatively, it is possible that one of the companies created to manage an industry pool would be willing to administer a university pool in exchange for a percentage of the revenues.

Which patents will be accepted?

While many wrinkles can be added to the technology-selection process, STC believes restricting the pool to issued patents is a good plan. Perhaps the easiest way to screen technologies is to use IPC codes, as STC did with its illustrative pool. If IPC subclasses are too broad for a given pool—and they probably will be, as noted above—simply specify the full IPC codes assigned to the desired technologies. Another option is to form an IP review team to evaluate individual patents, but this method is slower, less objective, and more resource-intensive.

Depending on the target licensees, founding members may be concerned with the pool becoming too big. (Perhaps the target companies, for example, do not have the resources to pay a fair price for a very large pool.) One solution is negotiating a license to a more affordable subset of the pool. Another possibility is formally limiting the size of the pool to a practical number of patents.

Will new members be evaluated on an ongoing basis?

Reconfiguring the pool every few months to facilitate a new member would be a logistical nightmare and create confusion among potential licensees. Instead, pool builders should not formalize the pool until there are enough patents to command attention in the target industry and meet the participants' minimum commercialization goals. Once the pool is in place, STC recommends having open-enrollment periods at acceptable intervals—perhaps every two years—to evaluate the content of the pool and potential members. This will give members sufficient time to focus on marketing and licensing each iteration of the pool.

What kind of license agreement will be used?

Although a patent pool license can include running royalty rates and countless other intricacies, STC recommends keeping the terms as simple as possible. Flat-rate, paid-up license agreements will greatly streamline the process for both the licensors and licensees.

How will the pool be marketed?

Ideally, a pool will be marketed by all members as part of their normal marketing efforts. As an additional incentive, however, the founders may wish to offer a commission, such as an off-the-top percentage of the license fee, to any organization that executes a license agreement.

Following the industry lead once again, the member institutions should establish a Web site for the pool to provide a single source of information to potential licensees. The site should include a list of the members and technologies, along with the license agreement and contact information.

Depending on the membership and the structure of the pool, the Web site could be set up to direct interested parties to a regional representative for the pool. Going back to the sample pool for a moment, a company in the Southwest could be given contact information for STC, for example, while a South Carolina-based firm could be referred to the appropriate licensing director at Georgia Tech.

Another marketing strategy is to advertise through subscription IP research services. For a fee, organizations can pay Delphion to identify their patents with a logo and a link to licensing information.[6]

How will the revenue be divided?

As discussed above, STC firmly believes the best approach on this issue is to split revenues according to each member's share of patents in the pool.

Who will pay maintenance fees on the pooled technologies?

Each member will continue to pay fees for its own patents.

Can a member pull out one of its patents?

No, a member cannot remove a patent if the pool has been licensed, but the school is free to license that patent—on a nonexclusive basis—at any time.

Conclusion

This paper is not intended to be the final word on university patent pools, nor does STC have a definitive solution to every problem that may be encountered in the process of building a pool. The authors hope the paper has made a strong case for aggregate physical science IP and provided a basic guide to developing pools among universities. The constraints under which university technology transfer offices operate are substantial, and putting in place a patent pool agreement will be hard work. STC believes the benefits are well worth the time and energy. Keep in mind that the MPEG LA founders faced greater challenges and obstacles than anything university technology transfer offices are likely to run into in this endeavor. If fiercely competitive multinational companies—with hundreds of millions of dollars on the line—can work together and develop successful patent pools, the authors are confident that university technology transfer offices can, too.

The authors are very pleased to report, as a final remark, that STC and Los Alamos National Labs (LANL) are drafting agreements that will launch an optoelectronics patent pool. The authors and other STC employees presented our ideas to LANL's licensing team as part of a strategy-sharing meeting. The LANL team not only offered valuable feedback, but expressed interest in making the pool a reality. LANL conducted its own IPC code analysis and identified as many as three dozen patents in the six subclasses that LANL may be able to contribute. STC also has had preliminary discussions with representatives from the University of Central Florida and the University of Texas at Austin, and they, too, are interested in participating.

Acknowledgements: The authors would like to thank Jack Granowitz, special adviser to Columbia's Science & Technology Ventures, and Larry Horn, MPEG LA's vice president of licensing, for generously sharing their insights on the MPEG pool. Also, thanks to Allen Morris and the rest of LANL's licensing team for the continued support and encouragement.

Notes

1. A full list of the MPEG pool's members and patents can be found at the MPEG LA Web site, http://www.mpegla.com.
2. Louis P. Berneman and Kathleen Denis, "University Licensing Trends and Intellectual Capital," in *The LESI Guide to Licensing Best Practices: Strategic Issues and Contemporary Realities* (Hoboken: John Wiley & Sons, 2002), 227–247.
3. Life science technology transfer is very different, and license agreements for single patents are not uncommon. However, there may be instances when pooling life science patents under a single license is appropriate. For more discussion on this subject, see: Horn, Larry, "Alternative Approaches to IP Management: One-Stop Technology Platform Licensing." *Journal of Commercial Biotechnology* 9 (2003): 119–127.
4. Dr. Richard Gilbert, professor of economics at U.C. Berkeley, has written on the antitrust treatment of patent pooling and cross-licenses. See http://elsa.berkeley.edu/users/gilbert/wp/patent_pools100302.pdf.
5. Letter from Joel I. Klein, acting assistant attorney general, Department of Justice, Antitrust Division, to Gerrard R. Beeney, counsel for MPEG, June 26, 1997, http://www.usdoj.gov/atr/public/busreview/1170.htm.
6. yet2.com, a virtual technology marketplace, advertises its technologies in this fashion. See http://www.delphion.com/press_releases/yet2 for Delphion's press release on the yet2.com partnership.

Public Relations and Technology Transfer Offices: An Assessment of Media and Government Relations

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Abstract

This article discusses the importance of sound media and government relations strategies for technology transfer offices. It reports the results of a nationwide electronic survey and interviews with technology transfer managers on how they handle public relations issues in their offices. Strengths and weaknesses of their communication operations are highlighted, and perceived training needs are identified.

Based on their research, the authors recommend: (1) more proactive public relations activities for technology transfer offices, (2) increased promotion of business partnerships, (3) effective evaluation of current activities, (4) possible best practices, (5) specific training initiatives, and (6) ways to improve responses to attacks on the Bayh-Dole Act.

Introduction

As technology transfer offices have grown in size and importance, they have needed to interact with more constituencies both inside and outside of their institutions. Offices must work internally with university professors who may or may not wish to commercialize their inventions and academic administrators who want to see successful results from university research. All technology transfer offices interact with private-sector businesses that may want to gain licensing rights to patented inventions, but many offices also must communicate with journalists and state and federal legislators.

An increasingly important part of a technology transfer office's mission is managing successful public relations. While some associate the term public relations with negative images of flacks and spin doctors, most sophisti-

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cated profit and nonprofit organizations have long recognized the need for ethical public relations. As public relations executive and author Fraser P. Seitel observed, "Every organization has public relations, whether it wants it or not."[1]

Public relations "is the management function that establishes and maintains mutually beneficial relationships between an organization and the publics on whom its success or failure depends."[2] Because most technology transfer offices are small and don't have full-time staff to manage these important communication functions, the duties inevitably fall to others in the office.

This article will assess the public relations work being conducted by technology transfer offices, identify the strengths and weaknesses of current public relations practices, and highlight some of the best communication practices that currently exist. Finally, this study will report on the perceived communication training needs of technology transfer managers.[3]

This study will focus on three major relationships: the interaction between technology transfer offices and the news media, the relationship between technology transfer offices and state and federal lawmakers, and the cooperative relationships that exist between technology transfer offices and their universities' public information offices.

The relationship between technology transfer offices and the news media, a segment of public relations most commonly called *media relations*, is an important one for consideration because organizations are often judged by how they are portrayed in news accounts. Interactions with lawmakers, another segment of public relations often known as *government relations*, can be vital as legislative bodies debate and consider new laws that could substantially help or hinder the ability of universities to engage in technology transfer. Because technology transfer communication activities often are conducted with the assistance of university public information offices, that relationship also warrants attention.

Method

Though many technology transfer managers are increasingly aware of the need for effective interactions with internal and external constituencies, little is known about how technology transfer offices perform their communication responsibilities. To understand how technology transfer offices

approach specific challenges with media relations and government relations, the authors gathered data in two ways.

First, an electronic survey was distributed to managers at public and private universities who belong to the Association of University Technology Managers (AUTM) during the summer of 2002. The authors hoped the survey would provide a broad overview of how media relations and government relations are conducted by technology transfer offices.

A total of 94 surveys were returned out of the 279 distributed, yielding a response rate of 33.7 percent. The survey tried to determine how media calls are handled in technology transfer offices. It also surveyed technology transfer managers on their use of media policies, Web sites, and assistance from their universities' public information offices. Finally, the electronic survey asked respondents to assess their overall communication efforts and identify possible training needs.

Second, in-depth telephone interviews were conducted with the managers of twelve technology transfer offices during the spring of 2003 to gain greater insight into attitudes about public relations issues. The authors hoped that these interviews would help to provide some specific examples of successful and unsuccessful communication activities.

Each interview lasted between fifteen minutes and forty-five minutes. Individuals interviewed included representatives of private and public universities throughout the country.[4] Though all of the managers questioned had substantial experience in technology transfer, the sample included executives in their current positions for less than two months and others who have held their jobs for more than fifteen years.[5] Interview subjects were promised confidentiality so that they could offer candid assessments of their organizations' communication work. A qualitative analysis was conducted of the telephone interview transcripts to identify common themes and issues.

Results: Electronic Survey

The electronic survey showed that technology transfer managers recognize the importance of effective public relations for their organizations. As detailed in Table 1, nearly two-thirds of the managers surveyed said that they were generally satisfied with their offices' overall public relations efforts. Only slightly more than one out of four said that they were not satisfied with their offices' public relations performance. Most managers indi-

cated that they use communication professionals to promote their positive work. The majority of the managers also said that their Web sites are integral parts of their public relations efforts.

In addition to these positive findings, the survey results suggest that most technology transfer managers have high regard for their universities' public information offices. Table 1 again shows that most managers believe their universities' public information offices understand the work and mission of technology transfer offices. The managers also report that their public information offices have the expertise and the time to assist them.

These public relations strengths were offset by a number of potential weaknesses in how technology transfer offices conduct public relations activities. First, technology transfer managers are divided on their ability to handle public relations effectively. As indicated in Table 1, less than half of the respondents said they felt well-prepared to handle any public relations issues that might surface about their work. Second, more than half of the managers said they were inadequately trained to respond to difficult calls from journalists. Third, very few technology transfer offices have formal/written policies on how to handle calls from journalists.[6]

Table 1

Technology Transfer Managers' Assessments of PR Activities

Assessment	Agree	Disagree	Don't Know	No Answer
We are satisfied with our overall PR efforts.	63% (59)	27% (25)	9% (8)	2% (2)
We use communication professionals to promote our positive work.	68% (64)	29% (27)	0% (0)	3% (3)
Our Web site is an integral part of our communication efforts.	79% (74)	12% (11)	7% (7)	2% (2)
The university public information office understands our work/mission.	69% (65)	18% (17)	12% (12)	1% (1)
The university public information office has the expertise to assist us.	70% (66)	11% (10)	18% (17)	1% (1)
The university public information office has the time to assist us.	72% (68)	13% (12)	13% (12)	2% (2)
We feel well-prepared to handle any PR issues that might surface.	44% (41)	37% (35)	17% (16)	2% (2)
We are adequately trained to handle difficult media calls.	35% (33)	51% (48)	12% (11)	2% (2)

Please note: Some percentage totals do not equal 100 percent due to rounding.

Another weakness that emerged from the electronic survey is that most technology transfer managers do not frequently seek professional help with their public relations activities. As reported in Table 2, most managers ask for any communication help, special assistance with proactive communication strategies, and help on legislative or regulatory issues only a few times a year.

Table 2
General Willingness of Technology Transfer Managers to Seek Outside Help

Type of Assistance Required	Weekly	Once a Month	Few Times a Year	Never	No Answer
Asked others for any communication help in the last year.	4% (4)	22% (21)	61% (57)	11% (10)	2% (2)
Asked others for help with proactive communication in the last year.	1% (1)	18% (17)	54% (51)	24% (23)	2% (2)
Asked others for government relations help in the last year.	0% (0)	18% (17)	52% (49)	28% (26)	2% (2)

Please note: Some percentage totals do not equal 100 percent due to rounding.

More specifically, the survey tried to determine how often technology transfer offices asked for communication help from university staff or outside professionals to assist with proactively promoting their services to academic researchers on their campuses. As detailed in Table 3, only 9 percent of the respondents said they frequently asked for help to support this proactive communication effort.

The electronic survey also tried to assess how often technology transfer managers sought help from communication/public relations professionals to assist them with proactively promoting their services or innovations to business or industry. Once again, the results in Table 3 suggest that help with this type of proactive communication strategy is usually not requested.

Table 3
Specific Use of Outside Assistance by Technology Transfer Managers

Specific Use of Outside Help	Frequently	Sometimes	Rarely	Never	No Answer
Using communication professionals to help promote services to academic researchers	9% (9)	28% (26)	33% (31)	28% (26)	2% (2)
Using communication professionals to help promote services/innovations to business or industry	12% (11)	27% (25)	27% (25)	33% (31)	2% (2)

Please note: Some percentage totals do not equal 100 percent due to rounding.

Another weakness exposed by the survey was the infrequent use by technology transfer managers of their universities' public information offices. As noted earlier, managers clearly have high regard for their universities' communication officers, and the overwhelming majority of the technology transfer offices report that they had regular contact with their public information offices.[7] In spite of those assessments, very few (only about one out of four) managers always consult with their public information offices when sensitive media inquiries take place.[8]

The electronic survey also asked several questions to determine who handles media relations duties for technology transfer offices and how those duties are carried out. Specifically, office managers or the institutions' public information offices were most often identified as handling public relations activities for technology transfer offices.[9] Managers also indicated that, when news reporters called to ask about their technology transfer work, most of those calls were handled by either the manager or the university public information office.[10]

Finally, the electronic survey asked technology transfer office managers to indicate possible communication training needs they would like to see addressed during future AUTM conferences. The two most popular topics were how to generate media interest in technology available for licensing (desired by 44 of the respondents) and how to handle press inquiries (desired by 38 of the respondents).[11]

Results: Interviews

In the interviews with managers, two main themes emerged on the appropriate public relations goals for technology transfer offices. Managers suggested that fulfilling an educational function and disseminating a truthful message were important aspects of the communication goals for their organizations.

The most important goal identified by the majority of managers was the need for communication about technology transfer activities to educate key audiences. Several managers expressed the opinion that more people need to know "what we do" and "how we help society." As one manager at a large private university stated: "We often get a blank stare when you tell them you are with the technology transfer office."

A second important goal for technology transfer public relations is the need to communicate truthful information. One veteran technology transfer manager described his primary goal as "building credibility" in media relations, government relations, and business relations. Another manager said that the technology transfer function "can be overstressed and hyped" by the media, so technology transfer offices shouldn't try to create unrealistic expectations. Several managers also said that honest communication was the only way to build credibility for their offices with important internal audiences such as researchers and university administrators.

Interview subjects were asked to identify examples of impediments they faced when trying to advance their goals in media relations or government relations. Several managers said they didn't experience any problems and indicated that they "felt good" about their organizational situation. Clearly, the biggest identified problem was a lack of time and resources. One third of the interview subjects said they didn't have enough time, money, or they were understaffed.

Other obstacles mentioned included the bureaucratic problems of working in a large university. As one respondent characterized the impediment: "We have bureaucratic challenges in a large state university. We can't initiate calls to state legislators." One fourth of the interview subjects suggested that their offices might not be seen as a major priority at their universities.

A final obstacle identified during the interviews was the problem of communicating with faculty members. One manager said the problem showed a clear division between young and old faculty. Young faculty, in his

opinion, wanted to know "what they can do to commercialize technology and what's in it for me." He said the older faculty were less interested in applied research. Another manager noted that she faced a problem when her researchers were unwilling to be interviewed about their work.

Interview subjects were asked to identify specific examples of when their organizations had used media relations effectively in the last several years. Most managers said that they have had a good experience using news releases to publicize licensing agreements, gifts, or staff appointments. Some have used news conferences or receptions to focus increased attention on significant partnerships. Several technology transfer offices have held joint news conferences with businesses. One office mentioned a joint release prepared with a local congressman to announce an important federal grant received through his assistance.

Managers maintained that there are at least four important audiences for their news releases. First, the announcements might help generate greater business interest in a specific technology. Second, the publicity might create greater awareness among faculty about ongoing discovery at the university and prompt other professors to disclose new inventions. Third, releases can alert university administrators to new projects the technology transfer office is showcasing and elevate the visibility and value of the office on campus. Finally, several managers said that the publicity generated through news releases was often helpful in informing legislators about their accomplishments.

Beyond news announcements, technology transfer office managers identified a number of proactive efforts they have made to improve their public relations effectiveness. Several managers mentioned that they have meetings with the editorial boards at their local newspapers to build better relationships and inform the media of their office activities. One manager said he likes to invite reporters to visit his office. He invites the new editors of the university's daily student newspaper to visit his office every year so that "they know who we are and what we are trying to do." Other managers have had luncheon meetings with prominent technology and business journalists in their communities or face-to-face meetings with a variety of important external audiences around their states.

In addition to personal contacts, other managers described important proactive public relations efforts their offices have undertaken. One man-

ager said that his office produced a detailed annual report describing its activities. He said his office printed about 1,500 copies and distributed them to deans, department chairs, inventors, and reporters who needed background information about the office. The manager described it as "a miserable chore," but said they have now obtained outside help "to polish the report" and improve its overall appearance. Another manager noted that his office brought in a graduate student and a local public relations firm on a *pro bono* basis. They conducted one-on-one interviews with twenty-five of their customers (both faculty members and companies) to assess their communication effectiveness.

Managers also were asked to characterize their familiarity with local reporters. Eight of the twelve managers interviewed said their offices are on a first-name basis with reporters who cover technology in their states. One other manager said that, though he and his employees didn't know the reporters, his university's public information staff did. The other three managers said they didn't have a close relationship with reporters in their states. Seven managers said that, overall, their offices had an effective working relationship with the local news media. One other said that she would characterize their relationship with the press "as a mixed bag." Another said his university's public information office had an effective relationship with local reporters. Three other managers said they didn't have an effective relationship with the press.

Managers also were asked to discuss experiences their offices have had with difficult calls from reporters and how they were handled. Four managers said they have not had difficult calls. Another said that he referred tough calls to his institution's public information office.

Problem calls from reporters included: questions directed to a technology transfer office at a religiously affiliated school about the university's position on stem cell research, questions about whether a state university's research would be used to promote cloning, questions because a licensee had a prior history of using toxic substances, questions about why you would license your patent to someone in another part of the country who has no plans to create jobs in your state, and critical questions from a reporter who was upset because her friend was relieved from a position in the technology transfer office.

Several managers noted the problem of reporters who didn't understand what their offices did and what technology transfer was all about. As one put it: "Many come in looking like they could be a horror story." Another manager noted: "The better the journalist, the better off we are. … I'm less concerned by the good reporter."

Managers who have experienced difficult calls from reporters stressed the need to develop appropriate responses in connection with the university's public information office, legal counsel, business partners, and campus administrators. Those who have faced tough calls from inexperienced or unsophisticated reporters noted the importance of patiently trying to educate them about the office's work and mission.

All but one of the twelve managers interviewed cited specific examples of government relations work they or their offices have participated in, on either the state or federal level. In most cases, others handled the direct lobbying efforts for the universities. Nevertheless, most of the managers indicated that they worked closely with their institutions' lobbyists to make sure they knew what the impact of specific legislation could be. Other managers were directly involved in contacts with state and federal legislators. Some testified at state hearings or helped draft or edit state legislative proposals. Others have participated in state and federal roundtables, commissions, and task forces established to examine technology transfer issues.

One longtime manager said he had reviewed one hundred bills in the most recent state legislative session. He said that, during current sessions of the state legislature, 15 percent to 20 percent of his job was focused on legislative activities. As he observed, "I would not have predicted that ten years ago."

Other managers reported that their government relations involvement was more limited to work with national associations such as AUTM, the Council on Governmental Relations, and the Association of American Universities. Some institutions weighed in on important legal issues before the courts through support of *amici curiae* briefs.

Finally, managers were asked to describe how their offices should respond to attacks against the Bayh-Dole Act. Critics of the law have received increased visibility in recent years.[12] Without exception, the managers interviewed maintained that the survival of Bayh-Dole was crucial to their offices.

They suggested responses from several levels. First, almost all the managers interviewed noted the fundamental need to tell the technology transfer story effectively. Several encouraged national organizations to take the lead in the lobbying effort and provide the best nationwide statistics/examples on how effective technology transfer has been for economic development, job creation, and improving the quality of life. Second, others urged that local technology transfer offices needed to compile their own statistics and anecdotes on how they have made life better in their states. Third, a number of managers discussed the need to keep their congressional representatives informed on how changes to Bayh-Dole could damage their offices. Some have made those contacts themselves, while others said they have tried to keep their institutions' governmental relations offices briefed on the most relevant information.

Discussion/Recommendations

Both the electronic survey and the in-depth interviews revealed strengths and weaknesses in how technology transfer offices use public relations. Clearly, many offices appear to be actively involved in trying to develop and maintain strong relationships with important constituency groups. A number of effective practices, which could be excellent models for other offices, are being used to foster connections with campus audiences, the media, governmental authorities, and business. Unfortunately, many offices do not use the most effective public relations strategies. In fact, the research showed that a substantial number of managers were not satisfied with how their offices handled public relations matters.

Therefore, the final section of this study offers six recommendations for technology transfer offices to improve their public relations efforts. Appropriate action steps for each recommendation are presented and discussed.

1. Develop proactive approaches to public relations.

Action step: Evaluate the relationship between the technology transfer office and the university public information office.

- *Could the university public information office help promote technology transfer to faculty?*
- *Could the university public information office help promote technology transfer to business or industry?*

- *Should technology transfer managers confer with the university public information office when sensitive media questions surface?*

Though technology transfer managers said they respect the expertise of the staff in their institutions' public information offices, managers tap them for help infrequently. Most managers only ask for communication help with proactive public relations efforts a few times a year. One third of the managers in the telephone interviews said they could not cite an example of a proactive communication effort their office had initiated. Even when important moments arise for reactive public relations, technology transfer managers failed to contact their public information colleagues regularly for consultation on sensitive media questions.

One veteran manager suggested a valuable approach to working with a public information office. He took the initiative to invite his contact in the university public information office over to his office. As he put it: "We gave her the Full Monty." She was introduced to everyone on the staff and briefed on their activities. "She thought our work was interesting and important" and has become an advocate for the office.

It is understandable that technology transfer offices don't always have the time or staff to develop proactive public relations initiatives, but there is often help available elsewhere on campus. Taking the time to build a solid relationship with an institution's communication office and informing it of the needs of technology transfer professionals could pay great dividends.

2. Promote licensing agreements and new start-up companies.

Action step: Consider the best ways to make important announcements.

- *Should business partners, academic researchers, or government officials be included in the announcement?*
- *Could the announcement be made in a location that might generate more media interest?*

All schools that reported issuing news releases, holding receptions, or conducting news conferences to kick-off new licensing agreements or start-up companies reported positive results. Such announcements appear to help with important target audiences across the board by building good visibility for the technology transfer office with campus administrators, researchers, legislators, and business leaders.

Important new initiatives should be highlighted in news releases, but

offices should not assume that written announcements are the only way to explain significant developments. News conferences, ribbon-cutting ceremonies, and receptions to celebrate successful collaborations can make an announcement more interesting. Using a laboratory or new business site for the announcement can provide the visual elements that newspapers and television need to tell a story more effectively. Nevertheless, great care must be taken with any announcement to be accurate and avoid exaggerating the importance of the news.

3. Evaluate the office's relationship with important audiences.

Action steps: Assess how the office is viewed today. Seek audience input before changing communication strategies.

Only one office indicated having done a study of how customers view their performance. Every public relations effort must have an evaluation component. Taking the time to assess strengths and weaknesses is the only sure way to improve. Graduate students in marketing or communication could help determine how research faculty and business partners view the office. Client reactions should be obtained to make sure the office's Web site and other communication vehicles effectively serve their needs.

4. Monitor other offices' public relations efforts.

Action step: Know what communication practices have worked successfully at other campuses.

Good public relations ideas used successfully in one location might be worth replicating elsewhere. Reviewing other offices' Web sites might be a source of valuable ideas. Some suggested best practices identified in the interviews with managers included editorial board visits, annual reports, and yearly meetings with student newspaper editors. Though all communication tactics must be consistent with an office's overall public relations strategy and mission, successful colleagues are always an excellent source for new ideas.

5. Strengthen the communication expertise of technology transfer managers.

Action steps: Increase training opportunities for managers. Develop model media policies.

The electronic survey indicated that many managers wanted more training in this area because they feel poorly prepared to handle public relations

issues for their organizations. Topics such as how to handle difficult calls from reporters and how to generate media interest in technology available for transfer could be examined at future national or regional professional conferences. Media relations and government relations might be appropriate topics for professional development short courses. With only 14 percent of the offices reporting a formal/written media policy and calls from reporters being handled in so many diverse ways, consideration of model policies and suggested protocols for responding to reporter inquiries could be beneficial and might head off possible disasters.

6. Prepare offices to be more active in government relations.

Action steps: Some could play a bigger role in defending technology transfer. Best government relations practices should be identified.

All twelve of the technology managers interviewed for this study saw the survival of the Bayh-Dole Act as vital to their offices. Though most managers identified government relations activities their institutions have engaged in, the level of participation varied. To be sure, some institutions will never be as active in this area as others. Nevertheless, helping to prepare offices to play a bigger role in the defense of Bayh-Dole could be another useful training initiative. Best practices on how to contact local members of a congressional delegation and how to keep a university's federal and state lobbyists informed on issues crucial to the future of technology transfer could be identified and shared with other institutions.

If all politics are local, ensuring that local technology transfer offices communicate their messages to their lawmakers makes good sense. Doing so could help to protect the future of Bayh-Dole and ensure that legislators understand how their actions or inactions might affect technology transfer programs in their states.

Many technology transfer offices are handling their communication responsibilities effectively in spite of limited resources. If technology transfer is to continue to grow, local technology transfer managers will face increased pressures to serve diverse audiences. By strengthening their public relations efforts, technology transfer professionals might be able to build and maintain vital relationships with important constituencies in the future.

Notes

1 Fraser P. Seitel, *The Practice of Public Relations*, 8th ed. (Upper Saddle River, N.J.: Prentice Hall, 2001), 7–8.

2 S. M. Cutlip, A. H. Center, and G. M. Broom, *Effective Public Relations*, 8th ed. (Upper Saddle River, N. J.: Prentice Hall, 2000), 6.

3 *Technology transfer manager* is used in this study to refer to the top official in the office. The managers are often called directors, executive directors, or other titles at their institutions. Both the electronic survey and the telephone interviews sought the assessments of these top management officials.

4 Four of the managers interviewed managed technology transfer offices at private universities, and the eight other managers worked at public universities. The institutions represented included offices of various sizes. Three offices had one to three staff members. Four of the offices had four to nine staff members. Three offices had ten to fourteen people. The remaining two offices interviewed had fifteen or more staff members.

5 Three of the managers interviewed had been in their positions for less than one year, though all of them had worked in technology transfer activities in previous jobs. Five of the managers had served in their positions for two to six years. The other four managers each had between twelve and fifteen-and-one-half years of experience in their positions.

6 Only 14 percent (13) of the managers said their offices had a formal/informal policy, however, a majority of the offices responding (51% or 48) said they had an informal/unwritten policy for handling press calls. About one-third of the respondents (33% or 31) said they had no media policy at all. Two respondents (2%) did not answer the question.

7 Eighty-nine percent (84) of the managers surveyed reported that they had regular contact with their universities' public information offices, while only 9 percent of the managers (8) said they did not. Two respondents (2%) did not answer the question.

8 Only 26 percent (24) managers said they always conferred with their public information offices on sensitive media calls. Forty-nine percent (46) said they consult with them "sometimes," and 7 percent (7) said they

never confer with the public information office on sensitive media issues.

[9] Thirty-four percent of the responding managers (32) said they handled public relations activities themselves, while 43 percent of the respondents (40) said their universities' public information offices handled those duties, and an additional 5 percent of the respondents (5) said they handled public relations activities with assistance from the public information offices. Other responses included: other university administrators (7% or 7), another staff member in the office (4% or 4), who handled the call varies on a case-by-case basis (2% or 2), another staff member or me (1% or 1), and another staff member and the public information office (1% or 1). Two respondents (2%) did not answer the question.

[10] Managers handled the calls themselves 40 percent (38) of the time. About one-fourth of the respondents (24% or 22) said the calls were referred to their universities' public information offices, and an additional 6 percent of the managers (6) said either they handled the call or the call was sent to the public information office for response. Ten percent of the responding managers (9) said another office supervisor or the coordinator of a project answered media questions. Six percent of the respondents (6) said whoever receives the media call answered the questions. Other responses included: calls are referred to their offices' press person or marketing director (2% or 2), calls are referred to other university administrators for response (2% or 2), calls go to the other supervisor or the public information office (1% or 1), and who gets the call is determined on a case-by-case basis (7% or 7). One respondent (1%) did not answer the question.

[11] Other topics that generated strong support were: building better Web sites (desired by 22 of the respondents) developing effective newsletters/publications (21), and building relations with a university public information office (17).

[12] For example, see: Arti K. Rai and Rebecca Eisenberg, "Bayh-Dole Reform and the Progress of Biomedicine," *American Scientist* 91 (January-February 2003): 52–59; Eyal Press and Jennifer Washburn, "The Kept University," *Atlantic Monthly* 285, no. 3 (March 2000): 39–54; and Peter Arno and Michael Davis, "Paying Twice for the Same Drugs," *The Washington Post*, 27 March 2002, A21.

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