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In the Public Hearing on:)
COMPETITION AND INTELLECTUAL)
PROPERTY LAW AND POLICY IN)
THE KNOWLEDGE-BASED ECONOMY.)
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FEBRUARY 6, 2002

Room 432
Federal Trade Commission
6th Street and Pennsylvania Ave., NW

The above-entitled matter came on for hearing, pursuant to notice, at 2:00 p.m.

SPEAKERS:

Chairman Timothy J. Muris, FTC
Honorable Charles James, DOJ
Honorable James Rogan, USPTO
Honorable Robert Pitofsky
Honorable Pauline Newman
Honorable Q. Todd Dickinson
Honorable Gerald Mossinghoff
Professor Richard Gilbert
President Richard Levin

P R O C E E D I N G S

CHAIRMAN MURIS: Thank you all very much for coming. I'm Tim Muris. I'm the chairman of the FTC. We have a star-studded panel today, and I'm delighted on behalf of the FTC to introduce the distinguished individuals who have joined me today as we open these hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy.

We have with us the Honorable Charles James, Assistant Attorney General for Antitrust, U.S. Department of Justice; the Honorable James Rogan, Undersecretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office; the Honorable Robert Pitofsky, professor of law, Georgetown University of Law Center and former chairman of the FTC; the Honorable Pauline Newman, U.S. Court of Appeals for the Federal Circuit; the Honorable Q. Todd Dickinson of Howrey, Simon, Arnold & White and former Undersecretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office; the Honorable Gerald Mossinghoff, of Oblon, Spivak, McClelland, Maier & Neustadt, and former Assistant Secretary of Commerce and Commissioner of Patent and Trademarks before they had a proliferation of titles; and Professor Richard Gilbert, Department of Economics, University of California Berkeley and former Deputy Assistant Attorney General

for Antitrust, Department of Justice; and finally, but certainly not last or least, President Richard Levin of Yale University.

I want to thank each of the speakers for making time in their busy schedules to join us today. I think this is a premier panel of speakers, and I'm certainly excited. I don't plan to speak too much myself. When we announced the hearings on November 15, I made a set of remarks, and we have them available here.

I will say a few things, beginning with the obvious, which is that innovation has become crucial to our information age economy. Products and services undreamed of by our parents fuel the nation's growth. Whole industries have been born and others transformed, and understanding of the role of innovation and of the effects of competition on innovation is essential for responsible enforcement of the antitrust laws.

Intellectual property is a bulwark of the innovation process. The importance of innovative success heightens the significance of each of its components.

As such, questions involving the treatment of IP are increasingly significant in the application of public laws to business transactions, including, of course, the antitrust and consumer protection laws.

I'm pleased that the Justice Department has joined with us to co-sponsor these hearings, and that the U.S.

Patent and Trademark Office will contribute substantially.

The FTC has a distinguished history of studying important public policy issues relating to competition and consumer protection. The Commission's activities in recent years have been particularly notable. As chairman, I believe it is important to continue this tradition of research and study, which is why my fellow commissioners and I initiated this set of hearings.

Similar to the approach taken in prior FTC forums, the emphasis will be on hearing the best thinking from scholars, business leaders and legal practitioners on the nature and effects of the patent and IP systems.

In particular, the hearings will highlight economic insights on the effect of existing IP rules on innovation, growth and efficiency. IP and antitrust law both seek to promote innovation and enhance consumer welfare.

The goal of patent and copyright law, as enunciated in Article 1, Section 8 of the United States Constitution, is: "To promote the progress of science and useful arts by securing, for limited times to authors and inventors, the exclusive right to their respective writings and discoveries." IP law, properly applied, preserves the incentives for scientific and technological process that is for innovation. Innovation benefits consumers through the development of new and improved goods and services and spurs

economic growth.

Similarly, antitrust law, properly applied, promotes innovation and economic growth by combating restraints on vigorous competitive activity. By deterring anti-competitive arrangements and monopolization, antitrust law also ensures that consumers have access to a wide variety of goods and services at competitive prices.

In short, we hope that the hearings will help inform the policy-making process by bringing forth information that may prove useful to enforcers, lawmakers and scholars as they deal with IP questions. We are here to listen and to learn.

Our hearings could not be more timely. Despite the growing importance of IP, there is relatively little empirical work on the overall effects of the IP system as currently constituted. Economists have studied some topics, such as inter-industry differences and the effectiveness of patents.

Current empirical research on the effects of the IP and patent systems is being conducted under the auspices of the National Academy of Sciences. We are honored that the co-chair of this project, Yale President Richard Levin, is sharing the rostrum today.

The net effects on social welfare of various parts of the patent system, however, are not well understood, although IP experts I've talked to tend to hold strong and sometimes

contrasting views on the topic.

As a former professor who was schooled in the law and economics tradition, I believe that good empirical testing and analysis is vital to an informed understanding of the IP and patent systems and to the development of sound policy. Obviously when legal regimes overlap, as IP and antitrust do, there may be sensitivities at the intersection as each regime examines issues that are also important to the other.

I would like to underscore that there is no hidden agenda in these hearings. Admittedly, we will hear from critics who have expressed concern that too many patents are inappropriate or overly broad and that patent law today errs on the side of excessive protection of IP.

On the other hand, we will also hear responses from IP experts who are staunch defenders of existing patent rules and who strongly oppose any perceived weakening of the system.

Our goal is to highlight these contrasting points of view and to lay the foundation for further work that will increase our understanding and thereby enhance the quality of public policy.

In sum, our approach to these hearings and to other hearings the Commission may sponsor in the future is nicely encapsulated in a quotation from the first commissioner of patents, Thomas Jefferson: "Here we are not afraid to follow

truth wherever it may lead nor to tolerate any error so long as reason is left free to combat it."

Before turning to my distinguished cochair, Assistant Attorney General James, let me briefly highlight our plan for the hearings, which will take place in stages over a series of days through June.

On Friday, we will hold sessions on antitrust basics for patent lawyers and IP basics for antitrust practitioners. These sessions will differ from standard nutshell treatments in that they will focus directly on the issues of interest in the following sessions. They will also focus on which each discipline needs to understand to facilitate the conversation we anticipate during these hearings.

I highly recommend these essential foundation sessions to you. Subsequent sessions will address issues such as the roles of competition and IP in spurring innovation, real world experiences with patents, competition and innovation in different industries, likely consumer welfare effects of patent standards and procedures, likely consumer welfare effects of antitrust rules such as those for patent pools, licensing, contract, standard setting, unilateral refusals to deal and settlements. Our scope will include some international and jurisprudential perspectives on these issues. We will close with roundtables that will provide opportunities to assimilate what we have learned.

Let me turn to our next speaker. Charles James has had an impressive career in both the public and private sectors. He's now the Assistant Attorney General for the Antitrust Division at the United States Department of Justice. He previously served as a Deputy Assistant Attorney General for Antitrust and as Acting Attorney General during the first Bush Administration. He also served in senior positions here at the Federal Trade Commission.

In addition, he's had a very successful career at the law firm of Jones, Day, Reavis & Pogue with an antitrust and trade regulation practice.

On a personal note, I've known Charles for 20 years. I am delighted to have the opportunity to work with Charles and his colleagues at the Antitrust Division. I'm especially both pleased and proud that these hearings are taking place jointly with the Antitrust Division with Charles at the helm.

Please welcome my friend and colleague, Charles James.

(Applause.)

CHAIRMAN JAMES: Good afternoon, ladies and gentlemen. It's my great pleasure to be here today as we open up our hearings into the intersection of antitrust law and intellectual property.

I believe in giving credit where it's due. Bob

Pitofsky, during his tenure as chairman here, did a tremendous job of reviving the role of hearings on competition issues as a basis for assisting in the formulation of antitrust policy, and I'm very pleased that Tim Muris is carrying on that tradition and taking it a step further by inviting we at the Department of Justice to participate as full partners with him in these hearings, and we're certainly looking forward to that the effort.

As many of you know, I've spent a good deal of my career disagreeing with the antitrust pundits about just about everything, but one of the things that I do agree about is the significance of the issues that we're confronting today.

These intellectual property hearings, as evidenced by the very broad turnout that we see here in this room, have captured the imagination of the antitrust bar, the intellectual property bar, and I can tell you, having just returned from the World Economic Forum, that this was a topic of tremendous discussion there, and there is a tremendous amount of interest in every quarter about the process that we're undertaking today.

I think you can see from the slate of kickoff speakers that there is a tremendous amount of seriousness in this, and we certainly applaud the role of the Department of Commerce, both in current and in former personnel from that

agency in participating in this hearing.

You can see from the group of people who have come together today, including Judge Newman, that these hearings will take place on a very high intellectual plain, and they will be in the best tradition of developing antitrust policy; that is to say that we will try to bring the best thought process to the table and form our policy decisions on that basis.

I think if you sit here long enough today, I think you're going to hear from virtually every speaker, and it's one of the benefits of going second, that antitrust law and intellectual property law share a common purpose. Antitrust law certainly attempts to promote competition by preventing artificial restraints on the competitive process. Intellectual property law attempts to promote competition by celebrating and rewarding innovation through the creation of property rights and making sure that those rights have durability by preventing certain forms of imitation or inappropriate use.

Consequently, as antitrust law addresses the competitive implications of conduct involving intellectual property and as intellectual property law addresses the nature and scope of intellectual property rights, the key issue here is to have these things in balance, that is, competition laws do what they need to do to protect innovation and our competition laws do what they need to do

to protect the competitive process.

As Tim said, we approach these hearings with open minds, without any preconceived conclusions, and as Tim indicated, you're going to hear from a broad range of people, both the people on the antitrust side who have concerns about the extent to which property rights preclude competition, and people on the intellectual property side, who hold the view that the over-enforcement of the antitrust laws might intrude into legitimate intellectual property rights, and I think in the middle, hopefully, we will come to some good insights about how both disciplines can coexist and go forward promoting their joint goals.

Just by way of some introductory remarks about what I hope will take place at these hearings, I will start by saying that as everyone knows, the Federal Trade Commission and the Department of Justice articulated policies regarding intellectual property in 1995 in a set of guidelines. The most frequently asked question since Tim announced these hearings that I encounter is, "Is this an effort to rewrite the Intellectual Property Guidelines?"

I don't think that that's necessarily where anyone is going here. I think we are entering these hearings from a view that antitrust policy is best made in the light, and consequently, we want to get the best thinking and get the best information, and we'll let the policy consequences of

the information process sort themselves out as we are more informed.

Throughout this process of formulating the hearings, we found it useful to help to break the issues out into some flexible sub-groups. As with any grouping, the lines aren't always neat, but we hope to aim these hearings to focus on licensing practices involving single IP-holder practices and multiple IP-holders. Currently, the ubiquitous questions are refusal to license IP, and finally the international dimension of IP law as it exists in the various jurisdictions in a global economy.

Talking first about some of the issues that we hope we'll explore, in terms of the single firm aspect of it, bundling of intellectual property rights through means of packaged licensing has been an issue that's emerged in a number of antitrust contexts. We certainly hope that that will be explored to some substantial degree.

Obviously, these bundling practices can have efficiencies, but the critical question that we encounter as antitrust lawyers is whether or not they properly facilitate or in some instances impede the development and licensing of intellectual property. We hope that many of the speakers in their discussions will help us with regard to that issue.

A second issue that we encounter very often is grantbacks. Grantbacks will certainly allow people to share risks, particu

as you think of follow-on inventions from an initial licensing arrangement, but also there is the question about the extent to which grantbacks reduce a licensee's incentive to innovate. The hearings will hopefully inform us on that topic.

Finally, in the single firm area we expect to hear about a lot of licensing restrictions, for example, payments or agreements not to compete or agreements that extend beyond the life of the intellectual property rights, the wonderful area of refusals to license. As everyone knows, the decision in the CSU v. Xerox case 18 months ago by the Federal Circuit has been a topic of extensive discussion and thought in both the intellectual property and the antitrust communities.

We hope that the hearings will elucidate the thought process underlying that decision, how courts have interpreted it and certainly how courts have handled related issues such as license agreements that are conditioned on certain actions or cross-licensing on another patent or purchasing or requiring purchasing of other products.

Patent pooling is an issue that I'm sure will have a great deal of discussion about, especially intellectual property rights and organizations in particular. As everyone knows in the 1990s, the Division examined a number of arrangements, including I think three different proposals regarding MPEG, and two proposals regarding patent pools. In all five instances there were favorable business review letters, and

it's important as we go forward in these hearings to examine and reexamine the thought process that underlie those decisions and to make sure that we're applying the appropriate criteria and appropriate approach in evaluating these collective circumstances.

On a somewhat related note, standard setting organizations are a very important topic. We know that standards often can facilitate the creation of products through encouragement of compatibility. By the same token, standards organizations bring together competitors which always make antitrust lawyers at least look closely, and making sure that we have the right approaches with regard to standards is an important issue.

With regard to standards, it is important from my standpoint that we look to both the creation of the standards, but also the operation of the standards down the road and hopefully bright ideas that we bring together will help us think through those issues.

There's a whole host of practical issues that we hope to look to. One of the key issues that comes up in the antitrust context very often is the question of scope and validity. This issue can often be determined competitive as to whether we think that there are firms that are in horizontal or vertical relationships with each other or whether they are, in fact, potential competitors of each other, and that is a significant issue in a lot of our conduct cases as well as our merger analysis. Again we're

hopeful that the issues will be discussed fully.

Finally in the international area, we now live in a world of global competition. Firms operate across borders. Many of the transactions that we look at are international in dimension, and it is very clear to the business community that different rules regarding intellectual property can impede trade flows, cause tremendous amounts of confusion and substantially complicate antitrust analysis.

Recently in December of 2001, the EU published a Green Paper. It's called Technology Transfer Block Exemption. There certainly have been discussions of the intersection of antitrust intellectual property in the UK, Australia and Canada.

I hope we'll spend some substantial time during the course of the hearings exploring how intellectual property is treated in various jurisdictions around the world, again promoting the very important convergence agenda that is at the height of what Tim and I are doing in other forums.

The fact of the matter is that we have a number of important discussions to undertake over the next several months. The schedule is ambitious. I think the staff of both agencies has done a tremendous job in assembling wonderful panels, getting balance, ensuring that the issues will be explored fully, and we certainly look forward to the opportunity to work with our colleagues at the Federal Trade

Commission and with all of you as the hearings progress.

I believe Tim's going to introduce the first speaker.

(Applause.)

CHAIRMAN MURIS: As those of you who know me know, this is the sixth or seventh job I've had in government and the third time I've been at the Federal Trade Commission, and it's not surprising that I'm an admirer of people in government service, and one of the best things about it for me is to meet many fine people over the years.

And one of my recent experiences excellent experiences along that line has been to meet Jim Rogan. I had admired Jim in the past and have recently had the opportunity to have several occasions to talk to him, and I was particularly excited when he took this job.

Judge Rogan obviously will add an important patent perspective. He's the Director of the U.S. Patent and Trademark Office and the Undersecretary of Commerce for Intellectual Property. That makes him the principle policy advisor in the Bush Administration on intellectual property matters, both domestic and international.

Judge Rogan also offers an important legislative perspective. He's served two terms in the United States House of Representatives. He was on the House Commerce Committee and the House Judiciary Committee where he earned a

reputation as a strong leader in the area of intellectual property.

Before his career on the Hill, he was California's youngest sitting state court judge. He served as presiding judge of his court before being elected to the California State Assembly, so please welcome Judge Rogan.

THE HONORABLE JUDGE ROGAN: First, I want to thank my good friend, Chairman Tim Muris, for inviting me to participate in these proceedings today, and to also acknowledge both him and another great public servant, Charles James, for their sponsorship.

And, Tim, if you will allow me, as we used to say up on the Hill, a point of personal privilege, I want to echo what Charles said about the fine job your staff has done. They have been extremely helpful to us as we have prepared for these hearings, and I want to thank and acknowledge them.

The USPTO welcomes the FTC and the Justice Department's desire to air a greater understanding of the patent system. Until recently, patent law was regarded as an esoteric field, understood and navigated by a relative few. It held, at best, a marginal place in law school curricula.

Today, both practitioners and law schools know differently, and the FTC and the Department of Justice are to be applauded for helping to create a better understanding of intellectual property rights. In attempting to regulate

certain economic relations, a greater appreciation of intellectual property will prevent against the unintentional consequence of stifling the very innovation and competition these hearings seek to encourage.

The USPTO is the federal government's tangible expression of commitment to invention and creativity. This commitment goes back to the early days of our republic. Our founders recognized the importance of patents and copyrights in encouraging research and innovation. In drafting the framework for the United States, they placed in the Constitution in Article I, Section 8, the authority for Congress "to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

For over two centuries, our nation has remained deeply committed to that vision. The founders understood that a property interest granted to inventors and creative competitors, for a limited period, would create the incentive for innovation to propel us from a small, agrarian colony into an advanced and prosperous country. The FTC and the Antitrust Division today undertake their missions in an economy in which intellectual property-based enterprises play a leading r

During my service as an elected official, I saw that vision in action. With the decline of defense spending at

the end of the Cold War, the economy in my home state of California came close to depression: Some 700,000 jobs were lost when defense industries left the state. Yet in a few short years California rebounded dramatically. All of those lost jobs were recovered and more, but they did not come from defense-based industries. Mostly they came from industries based on investment in intellectual property. Today, California continues to lead the nation toward a knowledge-based economy.

The understanding of the patent system begins with the recognition that patents are a form of property anticipated by the Constitution. The supposed tension between intellectual property law and antitrust law arises, I suspect, from a misunderstanding of patents as a form of monopoly. Although a patent allows an inventor to exclude others from using or selling the invention without permission, it is not a monopoly in the antitrust sense.

While patents can encourage risk-taking and investment in new ideas, patent law also limits the advantage that a patent confers. An inventor does not have an exclusive rights to that invention forever. Once the term of the patent expires, the invention is in the public domain and may be used or manufactured by anyone. This term limit also creates incentives for patent-holders not to rest on their laurels: They must continue to innovate, since the advantage

of patent protection is temporary.

In granting an inventor a temporary patent, the public is given permanent and valuable consideration. In exchange for the limited grant, inventors must disclose their invention for all the world to see, study, replicate, and make improvements thereon. The patent must describe and disclose the invention so completely that it would allow someone of ordinary skill in the art to replicate the invention without difficulty.

This is a remarkable trade-off. It is analogous to asking a business to each its competitors how to use the latest, most cutting edge technology. This disclosure requirement is all the more something when one considers that it also allows a competitor to see where the competition's research may take them in the future. It is highly unlikely that businesses ordinarily would open such windows into their research and development without obtaining a valuable right in exchange.

Under our patent system, that which might forever remain locked up as a trade secret is now open for inspection. In analyzing the economic effects of the patent system, commentators often ignore this quid pro quo that society obtains from inventors in exchange for the temporary patent grant.

The Patent Act also encourages the disclosure of

secret information in another way. It creates an incentive for inventors and businesses to publish their technologies early, even if they do not intend to patent them, since the printed publication of an invention can disqualify another who might independently arrive at the same discovery from obtaining exclusive patent rights in the United States. The FTC has previously noted the importance to competition of having policies that encourage disclosure and research. I know these hearings will highlight the important role that the Patent Act obviously plays in advancing that policy.

A patent is not simply a grant of economic advantage, nor is it a form of economic regulation. A patent must be earned through the satisfaction of objective criteria, as well as by appropriate disclosure of the innovation. When the inventor applies to the PTO for a patent, the application is examined to ensure that under the Act, the claimed invention is new, useful and non-obvious when measured against all previous inventions.

Patent examination does not include an analysis of the potential commercial impact of the patent. It does not determine the relevant market in which the invention may be marketed or sold. No patent examiner projects the economies of scale to be achieved through the invention. Patent examiners, in considering the breadth of claims, are guided by the principle that a patentee's rights are limited only by

the ability to make a fully enabling disclosure of the invention, to provide an adequate written description of the invention, to demonstrate the utility of the invention, and to show the invention is novel and non-obvious in view of what we call the "prior art."

It is true that an innovator in a new area of technology may gain what is called a "pioneer patent" that provides broad rights. There is nothing new, nor should there be anything unsettling about this. The history of patents, and that of America, is replete with examples of inventions that broke new ground. From the telephone to the Internet, from automobiles to plastics, the issuance of patents has not impeded the development of new technologies and industries, despite the initial protests that issuance of the patent would decimate innovation and competition.

Although patent law and competition law are not universally congruent, they're highly compatible and serve many similar ends. To the extent that the Patent Act and antitrust laws are based on dissimilar policies, competition regulators are rightfully cautious in assuming that Congress automatically intends the distinctive policies of antitrust laws to trump those underlying the intellectual property system.

This is especially true when one contemplates that the foundations of intellectual property are found within the

Constitution. These hearings rightfully reflect that caution as well as the FTC and Justice Department's recognition of the growing importance of intellectual property rights on the U.S. economy.

Over the last two decades, our three agencies have helped work within the framework of the patent system to facilitate innovation and productivity in the American economy. For instance, licensing guidelines at the FTC and DOJ promulgated in the 1980s helped articulate a balanced view of the value of patent rights.

That development allowed creative and inventive enterprises to increasingly see patents not merely as a tool for protecting their product market, but as valuable assets that serve a broader economic purposes. Based on the value of these assets, a proliferation of start-up firms in the last decade received financing even before they had products to sell.

Today established firms, and in particular universities, now have increasing incentives to look to others who can use their patented technologies in order to maximize return on their intellectual property. In contrast, a return by regulators to viewing IP rights with a 1970s era suspicion would risk interfering with these market-based incentives to innovation.

Several independent developments in the last 20 years

also have affected patent policy. One was the establishment of the Court of Appeals for the Federal Circuit. The existence of a court of national jurisdiction for cases involving patents has been an invaluable tool. By reducing the jurisdictional conflicts that had preceded the court's formation, the Federal Circuit has made for a more stable patent system.

The USPTO now has a more coherent body of law against which to judge patent applications, and inventors have a more assured basis for making judgments on filings. Patent litigators have a greater ability to anticipate the issues that will be raised in cases concerning whether patents are valid and infringed. This stability has helped contribute to enhancing the value of patent rights as an engine of progress.

Another development has been the expansion of the subject matter of patents. Whenever new technologies are prepared for patenting, such as with microorganisms or computer software, the entry of patent law in these areas was greeted with predictions of disaster. Yet today, the United States is the international leader in these and all other areas of technological advancement.

Further, the United States has made it a key part of its trade policy to create international frameworks for recognizing intellectual property rights. Agreements

negotiated through WIPO and the WTO have enhanced the ability of American inventors and holders of intellectual property rights to obtain and enforce parallel rights abroad.

In short, over the past two decades, the value of patents as business portfolio assets has increased, their validity has become more predictable, and the area in which patents could be obtained have expanded. Each of these developments enhances the usefulness of patent law as a motivator for innovation. This is reflected in today's unprecedented explosion of patent applications.

There are some who regard the increase in patent filings with suspicion. The USPTO regards this growth with mixed emotions. For a number of years, the USPTO has been engaged in what sometimes seems to be an epic struggle to muster sufficient resources to provide the timely and quality service our customers need. But we remain confident that the growth in patent applications is a boon for America's economy, as well as contributing to the genius for innovation.

Looking across the world we see a high correlation between a country's economic strength and the vitality of their patent system. No single cause explains economic growth, but neither is it an accident nor coincidence that the United States stands at the top of both lists.

Once again, I thank Chairman Muris for his gracious

invitation to participate here today. In accepting the invitation, I committed our agency to helping these hearings facilitate a full discussion on the issues surrounding the interplay of intellectual property and antitrust policy.

We look forward to assisting both the Commission and the Department of Justice in gathering whatever information they need to make sound policy decision in today's knowledge-based economy.

Thank you.

CHAIRMAN MURIS: Thank you very much, Judge Rogan.

Let me introduce now Bob Pitofsky, who is my distinguish predecessor here at the FTC. He was chairman for six years, and he encountered many of the complex and difficult issues that we hope to address in these hearings.

Indeed Bob was the first person who suggested that we do these hearings, and as on many other matters I took his advice, and it was good advice. Bob, as many of you know, has been a prominent academic for longer than he may care to admit. He's been practicing in these areas for decades. I first encountered Bob when I was a young staffer at the FTC at an AEI conference -- I don't think Bob remembers this, but I had the extreme pleasure of going out to dinner after going after he spoke, with Bob Pitofsky and Bob Bork, and Bob and I have been friends for a long time. He has graciously come back to give us his views on this topic, so I welcome Bob Pitofsky.

PROFESSOR PITOFSKY: Well, I didn't remember the dinner with Tim and Bob Bork. Have you got any notes? I would like to see what we both said.

I am very pleased to be included here in initiating this program, looking at these very challenging issues at the intersection of antitrust and intellectual property. The one thing that I think we're all going to be unanimous about is these hearings are timely and extremely important.

I realize that a set of hearings before a regulator agency, especially on such esoteric subjects, are not usually the subject of the headlines of newspapers, but history demonstrates the fact that quite often it's the hearings and the studies and the analysis that turn out to be more significant and have a greater impact than the high visibility cases that are brought by agencies.

And I appreciate Charles James' kind word about the fact that this agency in the '90s restored that tradition. I'm not entirely objective, but I do think this is the place, along with the Department of Justice and the Patent Office, to be exploring this set of issues.

It was what this agency was thought to be designed to do in 1914 and 1915. The idea was not just to enforce the laws, not just be an enforcement agency, but examine the question of whether the laws and the procedures that are current deserve to continue to be enforced and to be current,

to detect and report on new economic trends, and to investigate on behalf of the administration and Congress of new developments in the economy.

Now, these are important hearings. Why? I think the reason is that the economy is immensely dynamic, and most people would agree that innovation is the driving force in that dynamism, that increasingly the products and services that we care about the most and which make the most difference to the success of our economy are products and services that are the embodiment of ideas.

Now, it is true that antitrust and intellectual property have the same long-term goals, which is to encourage innovation or incentives to innovate, and to help to contribute to consumer welfare, but the simple fact, the reality is that it hasn't worked all that well at different times in our history. It's not a seamless convergence of policies.

In the 1970s, the Department of Justice issued a series of rules and regulations about antitrust and intellectual property, which were very, very restrictive. First of all, there was an assumption in those rules that if you had a patent, you must have market power, and I think that defies common sense. You can have a patent, and nine other people can have a patent, and you could be meeting them in the marketplace or you could be meeting non-patented competitors in the marketplace.

Many of the rules declared practices, especially

licensing practices, illegal per se, that is, abbreviated analysis in which behavior was declared illegal, simply on the face, without examining why the behavior was engaged in and whether there were good business reasons.

Many licensing practices that today would not even be investigated were declared illegal in that set of rules only 30 years ago. It was amazing to me to sit with a class of students, as I did just two or three weeks ago, and examine the content of the so-called "Nine No-Nos" of enforcement policy in 1970, a far, far cry from where we are today.

It seems to me that one must conclude that in that period, enforcement agencies, backed by the courts, had come to a position where antitrust usually trumped intellectual property and the values underlying intellectual property.

I do believe that the pendulum has swung a long way since then. There are many examples. I'll use one that Charles mentioned is going to be a subject of these hearings, and that is the CSU v. Xerox case. I have no quarrel with the result of the case, who won and who lost, but the analysis was as follows: That it's a unanimous premise, and I agree with that, that the party holding the patent or a copyright for that matter doesn't have to license it. They can tuck it away. They can p it away. They can do it themselves. They have no obligation to license.

That's unanimous, but then the next step in the argumer

is that because you didn't have to license it in the first place, you can license it on any terms you see fit, with three very, very narrow exceptions.

I am very uncomfortable with that kind of analysis. It seems to me that there, intellectual property has trumped antitrust because some of the licensed conditions that could be introduced are licensed conditions that have traditionally been violations of the antitrust laws, and I have in mind, particularly using your monopoly power, your real market power or your monopoly power in one market because you have a patent in order to influence and even monopolize another market.

That, it seems to me, is trumping antitrust, and all this occurs in a period in which many scholars are concerned, and I include myself in this group, in the number and the scope of patents that are being issued, even after you discount for the size of the economy.

The fact remains that there are more patent applications and more patents issued today per dollar of R&D than has been the case in many decades. I don't think it's because we've become more original and more innovative, and certainly I would look to these hearings to examine the question of why it is that we find ourselves issuing as many patents as we do.

What are the possible approaches? First of all, one

approach would be to argue that intellectual property is just property, and there's no reason why antitrust must adjust to take to special circumstances of innovation and the embodiment of ideas in to account. I don't think that's right.

I think in innovation-type markets, in the high-tech sector of the economy, it is much more dynamic and the durability of market power is less. I don't mean that it's always going to be dissipated in a short period of time, but on average market power isn't going to last as long.

Also, as the intellectual property guidelines pointed out, Rich Gilbert had so much to do with, it's so much easier to appropriate, to misappropriate intellectual property, and finally, and I think most significantly, there is emerging in this scholarship a notion that the basic economics of intellectual property markets are different.

Most of the expenditure in IP markets is in coming up with the idea in the first place. It's the basic investment in R&D. Once you have the R&D, duplicating the product often doesn't cost anything or hardly anything at all. A copy of a line of computer code, for example, doesn't cost anything at all.

The result is that quite often in intellectual property markets I recognize that the tendency is not to curtail output and raise price. It's quite the opposite.

It's to increase output and lower price in order to get as many people as possible to use this product which it costs you practically nothing to reproduce.

And Andrew Grove in his book "Only the Paranoid Survive" has a chapter in which he explains the economics of this. Lawrence Summers has done a paper quite recently on this subject, and I'm quite persuaded the economics could very well be different, and that should be examined in this set of hearings.

The other extreme is that antitrust has no role to play at all. Because the market is so dynamic, just leave the market alone, and it will take care of dissipating market power. As Bill Gates in a hearing before Congress said, no one has a key to the factory of ideas.

Well, I agree with that, but it doesn't follow that market power will dissipate in a short period of time. First of all, there is the patent itself which creates significant market power for a period of 20 years or the copyright for even longer. There can easily be network effects where once you pass a tipping point in a particular market sector, it becomes almost impossible for anyone to catch up.

You can leapfrog over it to a new technology, but catching up is extremely different, and just look at the real world. The fact of the matter is that there are companies in the high-tech sector emphasizing intellectual property who have had market power for quite a period of time -- ten years,

years -- and brought in enormous profits as a result, pharmaceuticals, bio-tech, computers and so forth.

Now, do I think that any company is likely to duplicate the performance of Alcoa in the first half of the century which dominated the market for the first 50 years? No, probably not, but that doesn't mean that you can't have durable market power in this industry.

The result is, the bottom line is, I don't agree with either position. Intellectual property is different, and yet I think antitrust has a very important role to play. The question is how do you adjust antitrust in order to fit comfortably with the goals of intellectual property?

That is an immense challenge, which I take it will be the centerpiece of these hearings. But with the Department and the FTC, and I'm very encouraged by the fact that the Patent Office is so willing to consider these issues in an open mind in an analytical way, and with the wonderful people who have been at the Commission in the past, Susan DeSanti and others, who have run our hearings, all I can say it's an immense challenge. Lots of luck.

(Applause).

CHAIRMAN JAMES: All of us today have been celebrating our role in making antitrust policy and making intellectual policy from the standpoint of the enforcement agencies and regulatory agencies.

One of the realities of our lives in government is every once in awhile there is another body of your government who can bring our policy decisions down to earth, and that is the judicial branch of our government, which has an equal and very important and very significant role in helping us understand the legal limits on the policy decisions we make.

We are very glad today to have the Honorable Judge Pauline Newman here to give us the view from the Court of Appeals for the Federal Circuit, the court that presides over many of these key issues we'll be discussing in our session.

She has served on the bench there since 1984. Judge Newman has her roots in the scientific community. She earned her Ph.D. in chemistry from Yale and worked as a research scientist before embarking on a career that led to a service on a wide variety of boards and committees dedicated to addressing legal issues in intellectual property.

Judge Newman has authored quite a number of very important decisions, far too many for us to list today, but they are very important, and she has helped to craft the law in this area as much as anyone, and we are indeed very honored to have her speak with us today and to get the judicial branch's input in these important undertakings.

Please welcome Judge Newman.

(Applause.)

THE HONORABLE JUDGE NEWMAN: Chairman James, Chairman

Muris, Judge Rogan, I'm delighted to share this distinguished podium and to share in the introduction of this very important topic.

All of the speakers thus far and surely for the rest of the afternoon will stress the national, social and economic benefits of industrial innovation. We've all recognized what we've come to call the knowledge economy.

We're talking here about knowledge based on science, knowledge derived from science, but knowledge that's been made available through technology and through industrial effort, electronics and communications, other new fields, all flowing from advances of science and from entrepreneurial risk-taking commercial investment.

Examples in the biological science you mentioned this afternoon, material science, the interrelationship of knowledge and the law and technology has penetrated even the mature businesses of the past.

Our court's 20-year existence coincides with this period of intellectual and industrial development, development that's been intertwined with and supported by the laws of intellectual property, primarily patent property on the agenda for today.

I should say that I speak only for myself, not for my colleagues on the court and not for our court, and I do draw on my past experience as a scientist and as a lawyer with

technology-based industry, and as well as my observations on the Federal Circuit.

The Federal Circuit arose from the broad policy study of industrial innovation, as some of the speakers have already mentioned this afternoon, in 1978 President Carter's domestic policy review of industrial innovation. It was a time of serious industrial stagnation. The Federal Circuit was formed as a dramatic move for the purpose of adding stability to the patent law. It was the first change in judicial structure in over a hundred years, perhaps the last for another hundred.

Let me tell you something about our court. Patent cases are about a quarter of our case load. The rest of our jurisdiction is mostly historical, derived from our predecessor courts, relating to government contract disputes, tax cases, Fifth Amendment cases and eminent domain claims, Native American claims (we're the successor to the old Indian Claims Commission), child vaccine injury claims, all of those appeals come to us, as well as veterans claims (we're the appellate court for the newly formed Court of Veterans' Appeals), employment disputes, oil and gas price controls left over from the old Temporary Emergency Court of Appeals, which has become quite permanent, and other customs duties case coming from the Court of International Trade come to us, unfair competition and imports. We receive the appeals from the

International Trade Commission, the trademark appeals, of course, from the United States Patent and Trademark Office and the other patent office tribunals, a broad variety deriving, as I said, from our predecessor courts and this additional jurisdiction of appeals of patent cases from the district courts in the nation, and the congressional insistence on preserving the general structure of the appellate courts.

Most of our judges have a general background. Most of our judges hadn't seen a patent with its nice blue seal before coming on our court.

The issues of policy, economics and the law that surround antitrust issues it seems quite clear to me are not the same from those that govern the role of patents.

Patents are directed at innovation. That's their purpose, and of course they affect competition. That's how they work. That's the only way they work, and that is why we're here today. The history of trade regulation though shows that these interactions have not always been well understood and perhaps still are not well understood.

The role of creative invention and the evolution of scientific knowledge and its practical application and the investment risk-taking in producing new products all become history, most irrelevant, when the products are successful and on the market. But isn't that when antitrust starts?

The patent system serves to encourage the start of

this lengthy and expensive and risk-laden process. Unless the process of innovation is successfully completed, the patent is of no value. I shouldn't say no value. The knowledge it discloses can be of enormous value.

But one of my first assignments as an industrial scientist was to review the technological history of synthetic rubber, and I did easily find about 150 detailed scientific references. Every single one was in the patent literature. None existed elsewhere.

In virtually all fields of technology today as well, patents are the major if not the only source of technical information, so it is appropriate to understand the functions of patent systems in considering trade regulation.

Patents cover only things that are new, things that were unknown before the patentee discovered them and disclosed them. The technologies have driven the economy since the Industrial Revolution have all invoked the commercial incentive of patents. There are, I'm told, no exceptions, from the cotton gin to the electric light, the airplane.

As soon as the inventor showed the way, the entrepreneurial spirits of the nation took hold, and the copiers appeared, and litigation ensued. All the major patents have been through the courts.

The economic role of patents was studied as well as

it might be at the time of the formation of the Federal Circuit court. You may recall that in the late 1970s, the economy of the nation was at a low point. Investment in basic science and in applied research had disappeared. There were mass layoffs of scientists and engineers. I recall the revolution in the American Chemical Society to try to somehow adjust or interact with what was happening to scientists who had studied and were jobless.

Our production in the United States was no longer competitive. Old technologies were stagnant. New ones were dormant, and the balance of trade had turned negative for the first time perhaps in our national history. Only technology-based industry made a positive contribution, and there was concern, real concern, that national policies were not attuned to the needs of this industry, that we had created disincentives to industrial innovation.

I was a member of this Domestic Policy Review in the Carter Administration, and I recall talking and thinking about the conclusions, and the conclusion that didn't take much to know, that a diminished patent incentive had evolved in the United States. Chairman Pitofsky mentioned some of the 1970 procedures and guidelines that were being followed.

It was clear that antitrust policy as well as judicial attitudes were providing disincentives to technological industry, and the economic consequences were

quite apparent, and they led to some major policy changes, new examination practices in the patent office. The Reexamination Statute came out of that study, formation of the Federal Circuit and changes in competition policy, changes still pretty much present.

In 1981, a spokesman for the patent section of the Antitrust Division, Roger Anderwell, summarized the economic premises for the policy changes. He said that companies that invest heavily in the research and development of new technologies have about three times the growth rate, twice the productivity rate, nine times the employment growth, and only one-sixth the price increases as companies with relatively low investments in R&D.

And that economic philosophy has very much guided the interface, if I can call it that, between antitrust and intellectual property law.

This so-called tension, we still call it tension, between the patent laws and the antitrust laws was rebalanced with emphasis on industrial innovation. Today our economy is even more dependent on technology and the advance of technology-based industry than we were 20 years ago.

Also during that period we've experienced the most creative, energetic, entrepreneurial surge since the Industrial Revolution because manufacturers are involved. I'm afraid our court can't take all the credit, but I would

like to. The creation of our court was a major step that was taken as part of the design to restore the statutory and indeed the constitutional role of intellectual property.

Well, we all know, and President Levin has heard me say, how hard it is to quantify the place of patents in this I call it a technological odyssey. The powerful new knowledge that science was producing was better supported by patents.

There were harmonious decisions of the Supreme Court. I mention particularly the Chakrabarty decision, which is credited for enabling the bio-tech industry, and the Federal Circuit, after it came into existence, the first thing that it did or tried to do was to restore the strength of the presumption of validity of patents had been in the statute since 1952, for all the good that it did anyone.

Our court, from the beginning, has tried to be faithful to the statute. I trust we've succeeded in some of these areas. One of the things that I have noticed since I've been on the court is that the investors, the businesses that have been built on technology, seem to understand what I call the risk return principles of the patent system often far better than the legal system has.

This commercial reality is seen in every patent in litigation, and it does contravene some of what I've read being written by the theorists. For example, one sometimes

reads, in studies of the patent system, that most patents are on minor changes. That's true. But the conclusion ensues that they aren't worth very much, why bother.

Yet in our court we often see patent litigation on what look like relatively minor advances in relatively small industries, but the business they support must be worth at least the hundreds of thousands or the millions of dollars that the litigation costs.

Each minor advance leads to the next one, to perhaps what's called a leapfrogging advance by a competitor adding the diversity and competitiveness, instead of the stagnation that we now see in industries where innovation is absent.

Economists tell me, I press them on this, that it's not easy to include all the variables and analysis of the relation among technological advance and patent rights. The value of individual patents, of course, varies greatly as do all other aspects of the product and its cost of development and its position in the market.

Commentators have well recognized that the dependence of patent protections varies with the industry and its maturity and its capital structure and its rate of technological change, and it does have other factors. I do see it. I welcome the interest of this Commission and of the scholarly interest, but we are still at the threshold of understanding how best to serve the national interest.

In the courtroom, each case presents a different set of relationships. The litigation is almost always between competitors, the innovator and often a copier. Litigation occurs after the invention has been developed, after it's been shown to be successful in the marketplace.

Only the successes are copied. The creation and the marketing of something new is much rarer, much harder than moving in after it's been proven out. It's for this reason that I say that the intellectual property laws are much broader impact than is measured by market competition, and I am pleased to see on the F.T.C.'s web page that you are receiving submissions on this broader impact.

Let me just close with a few thoughts as to broad areas that I think in addition to whatever else you're studying would benefit from review, at least as they apply to new fields of technology.

The first one involves very basic fundamental concepts that perhaps it wouldn't hurt to look at it again: how easy or how hard should it be to get a patent? What should be the extent of advance in the field in order to obtain a patent, and how do you measure it? How expensive should it be?

As Judge Rogan said, the thing to be patented must be not only new, but it must be unobvious to persons of ordinary skill in the field of the invention. Last year I think there were over 300,000 patent applications, inventors who thought th

they met those requirements at least enough to make the initial commitment in the legal fees to get into the system.

What an extraordinary testament to intellectual vigor. Not all of these applications will be granted, but maybe half will. So I wonder what's going to happen to the other half. Are they going to be shelved? Are they going to be hidden in secrecy? How many of those will be developed to benefit the marketplace?

The standard of unobviousness is the core of the United States' law of patentability. The early United States patent statues required only novelty and utility, as in England, that's what the British law required, but the judges often instructed the jury on something they called invention. Justice Story called patentability the "metaphysics of law."

Now, it's in our statutes since 1952 and requires unobviousness and there is a large body of precedent applying that standard. In litigation most patents are attacked on that ground. It's fuzzy ground. It's hard to decide, difficult to administer, even harder to set.

Some of you may remember at the time that the European patent was being established in order to try to ascertain what standard should be set for the examiners in the European patent office, the various systems were studied, and it was ultimately decided to try to establish a standard

sort of halfway between that which was being applied in Germany and that which was being applied in the Netherlands, perhaps approximating the vigor in the United States, perhaps a little more rigorous. I must say I'm no longer current on international practices.

What I have observed, however, is still the continuing similarities in the scope of patents that are granted in the various countries. Much has been written, is being written on patent scope, for it has many implications for the patentee and of course for competitors.

How easy, how hard should it be to avoid someone else's patent while using his idea? The Federal Circuit has in recent years tightened its view of patent scope, tightened its view of how the law of infringement should be interpreted.

As a result, our decision constraining the doctrine of equivalents is now before the Supreme Court, where much of the argument related to the balance between innovator and copier, a lot of discussion of fairness as well as the economics.

These are hard questions. They have many implications beyond competition, beyond patentability. For instance, some of our opinions have said that if you, the patentee, wanted broader coverage, you should have done more work. You should have had more examples of broader

specification and entitled yourself to broader coverage.

There's as much commentary on all of this. Some decisions have said, Well, you should have fought longer and harder with the patent examiner instead of taking what you could get. The critics say that all of this adds to the front-end cost, diverts resources at a time when they're scarcest, because it's often uncertain, at the time the patent application must be filed, even more so if we go to a first-to-file system, in order to decide whether the product has market value.

The response and generally my court's position is that the limits of the grant should be clear. There should be clear notice to competitors of what's covered and what's available without the court having to tell you.

These are important questions of law, policy and economics, and there are risk factors. Risk factors of course vary with the field of the invention, and again the front-end costs of R&D. How much you can do before you're reasonably assured of a return on that R&D -- do you have to do -- depends on the field of the invention.

In some fields technology is soon obsolete. The common thread, the fundamental theme of patents is that the prospect of a commercial advantage is an effective incentive, effective enough to meet our national economic goals, and that reducing that prospect reduces the incentive. How to measure

all of this I will leave in your hands.

I see the strength of the patent system drawn from the principles of property. The securing of property, as one discovers, this is the word that the Constitution uses, to secure the right, was viewed as the securing of a natural right. It's interesting to me to compare Jefferson's view of patents as primarily an instrument of fairness with Madison's view as an incentive to commercial enterprise, but both of these accord with a powerful view, the powerful belief of the framers in the sanctity of property.

And it's these property rights, as I see it, that are the foundation, the economic foundation of the innovation incentives that are built on technology.

I have yet to come upon an improvement in the simplicity and effectiveness of the principle that legally protected exclusivity for a limited time in exchange for the disclosure of the new knowledge is an incentive, an effective incentive to innovation.

So where are we? Science and its applications have never been more promising. Technological development has never been more dynamic. The public disclosure role of patents in this context is at least as important as it's ever been. The knowledge contained in patents is not owned by the patentee. It's contributed to the public.

Only the use of the knowledge in tangible embodiments

that you sell is controlled by the patentee. Others can use that knowledge to enhance their understanding, the progress of science to build on it. In that sense the property is the converse of intellectual, for the ideas in patents are freely available to all.

I was interested to hear that you're also going to study foreign patent and antitrust aspects because we know that much of the patented technology in the United States is of foreign origin. This reflects the large foreign presence in our markets, and United States industry reaching into world markets under foreign patents.

In our court, sometimes both sides are foreign entities or at least the U.S. subsidiaries of foreign entities, and the patent decisions in other courts, we see this in some of the European states, often are United States origin inventions.

Other nations are studying our law. They're very interested in our judicial structure. We often have delegations finding out what is the secret of the entrepreneurial vigor and the creative strength of the United States. Again I would like to think it's the Federal Circuit.

So I conclude with a truism, that an understanding of intellectual property in all of its complexity is fundamental to the development of an optimum national policy.

So I commend you, Mr. Chairman, General James, for

this educational afternoon.

(Applause.)

CHAIRMAN JAMES: Our next two speakers, Q. Todd Dickinson and Gerald Mossinghoff, have both helped lead the Patent and Trademark Office. First, Mr. Dickinson is a former Director of the U.S. Patent and Trademark Office and the Undersecretary of Commerce for intellectual property.

He is now a partner at Howrey, Simon, Arnold & White. He specializes in intellectual property, drawing on his wealth of experience in this field. He's also written extensively on topics of keen interest to us today, including electronic commerce and IP enforcement in a knowledge-based economy.

He's taught at George Washington University, my alma mater, which makes him brilliant; Georgetown University; George Mason University, a place of fondness to Chairman Muris; University of Pittsburgh; and Tokyo University.

Please welcome Q. Todd Dickinson.

MR. DICKINSON: Thank you, General. Thank you again for inviting me, and I know I join my colleagues, both current and former at the USPTO, in thanking you and Chairman Muris for convening these hearings because this is obviously, as many speakers have pointed out, a critical and an important topic for us to investigate.

Let me also thank Judge Newman. She is a tough act

to follow in many ways. She does a beautiful job at articulating many of the key issues that are before us, and so what I'm hoping to do today is just touch on a few of them from the perspective of someone who has had to, as my colleagues have, administer the system and talk about a few of the particular issues that are involved there that I've understood your point to look into during the hearings.

I think it's instructive to recall, as several speakers have, just what the benefits attained by intellectual property systems and the policy rationale for them are in the first place.

As was suggested, the first and principal rationale obviously is that many times economic incentives are needed to motivate people to invest fully in research and development into new technologies, and we provide those through the systems that we've been talking about today.

By providing that period of exclusivity, prohibiting others from copying innovation, they are designed to encourage the investment in that research and development and in the resulting innovation.

This has been repeatedly demonstrated, and I'm going to put some of this in historical context. This has been repeatedly demonstrated throughout our history in the United States. The patent grant and the copyright grant are both constitutionally based, and they were among the first laws

passed by the very first Congress sitting in Philadelphia, and those systems, I think, have led in many ways to the United States being among the most technologically advanced and culturally rich countries the world has ever known.

Now, sometimes, as people have said, we call these rights monopolies. I think that's probably too strong a word. It obviously has inherent and sometimes negative connotations, so what is really granted is a fairly limited property right in many cases, property right whose economic value will often be determined by the market and not by government fiat.

Also, I think it's important to remember that in only a very small percentage of cases can patented ideas survive the product development cost burdens, the manufacturing problems, the marketing problems, and the other rigors of getting them into an actual product, and many patent ideas that do end up in cover alternatives, incremental optional features, cost savings, et cetera, and don't ordinarily displace alternatives, and they can also, in many cases, be easily designed around.

There are also many inherent legal limits on the protection that patents can afford. A valid patent, some have said, is really nothing more than a limited term right to bring an expensive and lengthy lawsuit against infringers on the basis what may turn out to be narrowly drawn or interpreted claims.

Moreover, any prior use, any sale, any publication or public knowledge more than one year prior to the application filing date is an absolute bar to the validity or enforcement of such a patent. It might be suggested that therefore only on occasion or rarely can individual patents or small clusters of patents, even if fully enforced, provide significant market exclusivity, and only in narrow and new markets for limited terms, no matter how unfairly one might seek to define that relevant market.

The number of truly pioneer inventions or pioneer patents that turn out to be capable of providing significant market power with sufficiently broad claims may be indeed fairly small, and if so, are usually well deserved.

Now, this is not to suggest that multiplicity of patents or what have been called patent thickets or patent shields or other collections of patents could not establish sufficient barriers to entry to create the possibility of market power. I think that's one of the issues that these hearings will elucidate in many ways, but as I say there are many vehicles and many mechanisms that are used to address the negative implications of that, designing around being a key one, thereby improving the process.

In turn, broad cross-licenses are given to those improvements. These mechanisms can help break down some of those thickets and shields and provide business access to the

intellectual property and actually encourage competition.

Now, obviously this is not to say that certain situations could not raise anti-competitive concerns. Some of them have been talked about this morning. One can certainly envision when patent thickets arise when accompanied by anti-competitive conduct, they can tip the balance between IP protection and the antitrust laws.

The Commission and the Department have dealt with these, for example, in the DVD context, MPEG and others, and they have mechanisms to deal appropriately with such situations. But again it's not necessarily the patent thicket itself, I don't think, which tips the balance. It's the anti-competitive conduct.

Some, however, including perhaps a lot of folks in the academic world, worry that overly strong IP protection rights or those which might be inappropriately or overly expansively granted may actually have the opposite effect to this incentive that we've talked about, and that may serve as an impediment rather an incentive for the kind of technical progress the patent system was designed to foster.

Repeated studies have sought to analyze this question over the years from a variety of pedagogical viewpoints, and frankly I think they've come to a fairly widely varying results. For every individual who believes that broad patent rights will choke such important and fast-moving

fields as the Internet or genomics, there are others who argue that the historic record and frankly the current market might suggest otherwise.

I'll give you an example. Some have argued for years against the patenting of software. It's been a long running debate, since the first programmable digital computers had software which was accessible generally.

They have charged that the patenting of software in this context would actually impede, maybe even strangle, an important industry sector in the United States. Yet today, we patent software routinely. It's one of the fastest growing categories of patenting in the office, and the patent software industry seems to be remarkably robust in the United States, and the factors that have contributed to certain charges of market dominance in that field have not implicated patent rights.

Now, when new technologies arise, they even create a significant enthusiasm to spread that technology very rapidly, and sometimes intellectual property is seen as an impediment to that spread, and I think that's a fair reaction, it's a natural reaction, particularly when it's those technologies may be widely accessible or easily copied.

However, most of these new technologies, at the same time, depend very heavily for their commercialization on the protection and the nurturing effect that IP systems properly

provide.

Investors in such new technologies often require that there be strong assets to provide the collateral to back up those investments. If they can be copied easily by competitors, there's obviously less incentive to invest, so ultimately there's a tension, the tension in these hearings again will illustrate between the need to incentivise invention and particularly follow-on invention and the need to incentivise investment in the development and commercialization, and then to make that technology widely available.

It's also important to note that many factors will affect the commercialization of technology, especially in fast growing areas. There's sometimes a presumption that patents can bring this to a halt. As we've said, if only patents were often that powerful. Ordinary market forces can often swamp that effort, and moreover, as we've said, designing around and other types of mechanisms have contributed here.

For every one-click patent which is alleged to dominate on the on-line retailing market, for example, there comes a new solution, such as two-click with its inherent technological and commercial advantages and potential outcome at the end of the day, and I hope that the studies that this process will evaluate and bring to light will provide a

balanced review of this area, and a subsequent understanding of the reality of the situation which I think is much more important than the academic arguments that are sometimes engaged in.

Let me again reiterate and commend, mirroring what Chairman Muris had said and commend President Levin -- and Commissioner Mossinghoff is involved in this as well -- for the study they're undertaking at the National Academy of Science, and I think that's extremely valuable.

Let me talk a little bit about some of these specific topics. Patent thickets, again let me return to that for a second and how that relates to what we do or what we've done at the Patent Office.

Some concerns we've said have been raised over the extent to which these new technologies may lead to multiple licensees and multiple patents and what the competitive effect of this might be.

The principal evidence behind a lot of these concerns appears to be the increasing number of patents, and several speakers have addressed this issue of patents and the number of patents and patent applications which are processed through the Office.

There hasn't been a lot of empirical data yet. I would suggest, though I know there are some studies out there, that would demonstrate just where these actual

thickets are in a particular industry. I think that will be an important thing to come to understand, if indeed such a thicket or such a concentration existed.

It may be something that's more researched as occurring across a wider spectrum of technologies, and these new technologies, as they arise, there may be an underappreciation of the potential for patent protection where this expansion occurs in areas such as business methods.

It may also be the case that reforms in the patent laws and policies that we'll talk about, and I'll talk a little bit more in a minute, have made the patent system more accessible and made it where at one point in time it may have been underutilized.

Also, I think a lot of the arguments about thickets, unfortunately, tend to seem to rest, at least the ones that I've heard, on fairly anecdotal evidence, where patents are categorized as broad or overbroad, either through a have I expansive reading of the patent, maybe the abstract, maybe the press releases in some cases I've noted when companies obtain patents.

It should be reminded that the claims of the patents are the only thing that have a legal effect, and as the Commission and the Department and others study this, I think they need to make sure they get below the surface to a lot of

these arguments to the reality of them.

Of course it is indeed possible, maybe even likely, that thickets might exist in certain areas, but I think we have to take them in many cases on a case-by-case basis.

Let me talk about the issue of scope of protection, which I think is another issue. Defining patentability subject matter is at root. It's a matter for the Congress and for the courts to decide, and as Judge Newman talked about, we have gotten very clear guidance in this area in many ways, from the very seminal opinions 20 years ago in Diamond versus Chakrabarty where the Supreme Court held that genetically-engineered living organisms were appropriate subject matter within the scope of Section 101 of the Patent Act, and then in doing that propounded the broader philosophy that anything under the sun made by the hand of man is patentable subject matter.

Right up to the present time, the U.S. system has taken a very expansive view of what is protectable by patent, and in many ways, we are by far the world leader in recognizing and expanding that.

And just a month or so ago the Supreme Court in the JEM case reiterated and actually went from a five to four vote up to a six to three vote on this basic tenant of the patent law.

Now, most observers would I think recognize that this

change, this evolution, this setting that we've come to has also been a very significant contributing factor in the United States to developing new technological markets, technology probably being the singular example.

Another great foundation or principle of our system in the United States is that it's technology neutral. It aims to apply the same norms to all inventions and all technologies. Now, some are critical of that. That's understandable, but I think that the uniformity and the neutrality of patent standards, of novelty, the obviousness, non-obviousness and utility have allowed it to respond to new sciences, entire new industries, without the need for Congress to constantly retool the law with the attendant political pushes and pulls, depending on who's in power or who's the chairman of a particular committee or not.

The natural evolution of the patent system I think is no small achievement. More importantly, I think these arguments that have been made about the scope of patents may be actually after the wrong target in some ways, with potentially negative results.

I think in that context, it's very important to distinguish between patentability, what's patentable on the one hand, and access or licensing or the ability to get at that technology on the other hand.

Now, licensing clearly has antitrust implications, if

the underlying behavior is anti-competitive. However, in many areas where the actual concern is about access, we were talking about software a minute ago, genomics, even to some degree the very rigorous debate about HIV/AIDS drug pricing in South Africa. Those who would suggest that the concern needs to be dealt with have dealt with it by trying to attack patentability instead of licensing and access, and I think that's getting at it from the wrong end.

As I said though this is not to suggest that certain types of patents may not raise legitimate questions of access that have market implications.

These examples, while important, in many cases tend to be fact- or technology-specific and therefore can be best dealt with with an individualized or medial approach perhaps rather than a broad brush.

An important and I think justified concern in this area is what's called patent layering. It occurs at the moment most significantly I think in the genomics industry. The concern is that patents which issue on gene sequences, perhaps even greater concern on fragments like expressed sequence tags or single nucleotide polymorphisms, will be so numerous, yet issue to such a multiplicity of inventors and assignees so as to form a kind of intricate licensing web that prevent other researchers from gaining access.

For example, if you were going to commercialize a

diagnostic method, you may have to go from owner to owner to owner to owner with redundancies and cost implications that are clear.

To address this concern I commissioned, when I was over at the Office, what was called a white paper on so-called patent pooling to analyze whether this traditional means of dealing with this issue might be appropriately applied in the biotechnological area.

Now, in traditional antitrust terms I think patent pooling's often thought to have negative effects and can be highly discouraged when it's unregulated. However, when we have a situation as we're talking about here -- another recent example would be the MPEG or High Definition Television, for example -- there is a really opportunity I think to moderate the negative effects, to increase access by pooling together with appropriate oversight and regulations. That white paper I think is still on the USPTO web site.

Another good example of an appropriate access mechanism that's worked is a very similar one, and that's one, for example, that was adopted 20 years ago by the University of California, San Francisco and Stanford, who were the assignees of the Cohen/Boyer patent for manipulated recombinant DNA, a very basic -- in fact it's a very pioneer patent.

The assignees in that case, recognizing the issues

they were faced with, chose to license that patent, chose to license that patent freely to any academic researcher or any non-commercial researcher that wanted to use it and charged an appropriate licensing mechanism for the commercializer of that.

As a result in many ways the bio-tech industry continued to grow and prosper, and we've seen that today recently in a similar mechanism where the Wisconsin Alumni Research Function has entered into a similar licensing program with regard to their system cell patent, also a very significant pioneering patent.

One issue that this highlights, which I think should be -- I think those of us in the intellectual property community are very nervous when it's invoked, one issue which is clearly sort of on the table, and that's the question of compulsory licensing.

I think it probably behooves us to look primarily in that area to much less drastic alternatives, cross licensing mechanisms we've talked about before, the use of superior licensing, negotiating strength in certain areas and particularly the public sector. NIH's agreement with WARF would be a good example, even jawboning by public policy officials. An example of that recently would be HHS's Secretary Thompson's discussions with the Bayer Corporations on Cipro in the wake of the recent anthrax attack and the patent pooling I talked

about before.

Let me talk briefly about the breadth of patents which are issued, because I know that's another key question which people have talked about a lot, and before I do that, specifically let me touch on an issue which Director Rogan mentioned, and that is the issue of revenue. That directly affects this question.

USPTO is one of the only, if not the only, fully fee funded agency in the federal government, and any diversions of fees from the USPTO that occurred on my watch, on his watch, and others' watch, continues to be a significant problem, particularly if that magnitude increases. It directly affects its mission, the quality of its products and services.

And I think I would applaud those in Congress who are trying to take steps to statutorily end this on a permanent basis and solidify the PTO's revenue position.

I think also additional resources need to be developed to further that mission. Patent examiners need more time to examine. They do, especially in increasing complex arts, especially with the greater burden which, with all due respect to Judge Newman, which the courts I think are appropriately placing on the Office to make a greater and more complete record.

In this case time truly is money, and if the quality

is to be further improved, resources have to be found. Now, this is not to say in any means that the examiners don't do a great job with the resources they have. They do, but this is not a case of trying to go to terrible to perfect. This is rather going from very good to better.

Now, second, much of the public comment on breadth seems to be again kind of anecdotally driven or somewhat based on flawed methodologies. Many critics of patent breadth choose very individual patents to pick them out. The USPTO issued 190,000 patents last year, and they picked these out to try to make their case.

I think it's very important that we understand the breadth of the kinds of issues we're talking about in this area rather than using war stories or individual cases.

However, one of the mechanisms for dealing with that is the reexamination system, which would allow the Office to go -- allow the patentee or third-party to bring that patent back into the Office for reexamination in light of additional prior art.

Now, traditionally there's tension here. Congress took this issue up no less than three years ago, passed a bill expanding reexamination somewhat, but leaving a system which still had some rather significant holes in it. Congress, fortunately, I think is something in a mood to reconsider this issue again. I would hope that they do

because I think that the reexamination system is a very valuable one but it needs additional reform.

Let me touch on the issue that Judge Newman talked about, and that's the issue of obviousness. The USPTO searches and examines in accordance with statutory and regulatory law. Section 103 is a good example of that, but in that case, the courts have required the Office to apply only specific and definitive art references with clear motivation of how to combine those references, and only that will suffice for this obviousness determination.

As recently as last month, the CAFC stated that this evidence had to be clearly documented. The examiner could not even rely on the general knowledge that the examiner had in the field or even common sense for an obviousness determination.

Regarding patent quality measures generally, let me suggest that the only really comprehensive data of quality that I'm aware of that's really truly comprehensive happens to reside in the USPTO itself, in their owner quality assurance process.

This cuts across all technologies. That process is conducted by the most seasoned, the Grade 15 examining professionals, that's been in place for many decades. There's large body of data. It's constantly reviewed by USPTO manageme by the Inspector General at the Department of Commerce and by (

and subject to congressional oversight.

It is showing a remarkable consistency in quality over the long-term, so anyone who would choose to study, I hope folks do, quality in this area needs to gain access and use that particular data.

However, when new technologies emerge -- a good example would be business methods, which I know was an issue that was cited in the materials leading up to this meeting -- additional and perhaps tailored approaches need to be taken. That issue arose in 2000, and what we did in the Office was to put in place the so-called business method initiative which, while these patents have been issuing since the mid-1860s on, while the IBM Corpora was founded on a pair of patents from the 1890s on the method of keeping statistical records, they've really come into their ope as a result of the State Street Bank opinion and the growth of the Internet.

I think it's instructive. Many people have been concerned about the growth of these patents in the Office. They are rapidly increasing, but it's also instructive to note, they're less than a half of 1 percent at the moment of all the patents that issue out of the office.

But the concerns about how this Office addresses them are real and genuine, so we issued this business method initiative. Among other things, we brought the private sector in these technologies, insurance industries,

securities industry, et cetera, into the Office to help the examiners understand them better, and we instituted what was called the second look where a very seasoned examiner or quality assurance specialist reviewed them a second time before it issued.

And the effects of this was the overall allowance rate dropped down to about 40 percent, which is almost 25 percent or more less than the overall issue rate in the Office.

Finally, let me talk about an issue that Chairman Pitofsky raised, and that was the number of patents that issued overall and what the implications are of that. Let me suggest, he raised a concern about it.

I think as Director Rogan stated, it's obviously a concern for the Office in its operations and its revenue. I think it will be a very interesting thing to determine what the impact of the effect of that is overall. Some would suggest that it's a natural consequence of reforms that were put in place to strengthen the patent system.

It's also I think a natural consequence of the increased investment in research and development. It's also a consequence of the increase in foreign filing in the United States.

I think we also need to remember that patents expire, not at the end of their full term, but they expire when

someone fails to pay the maintenance fees, and that something like on two-thirds of patents, the maintenance fee at year 12 is not paid.

Let me talk a little bit about some of the reforms which may have led to this multiplicity, we'll call it, of patents. In the early '80s principally and into the '90s they included things like creation of the CAFC, Diamond versus Chakrabarty, the reexamination system, the Bayh-Dole Act, better, at least more certain, funding mechanisms.

All of these I think have contributed to making people feel -- business people, researchers, investors feel more secure in the patent system, and that likely has driven up I think in many ways the number of patents which have issued.

I think we need to place this in a certain context. It may not be that there are too many patents issuing today, but rather that there might have been, if you will, too few before, that they were underutilized, undervalued because of flaws in the system at the time.

Some have also suggested the process the USPTO conducts is without adequate oversight. I don't think that's the case either with their conduct or their policy function. F example, the software field, three public hearings have been held in the last decade to get input. Long comment periods

have ensued after that.

As we developed examination guidelines on biotechnology and utility and written description requirements and others, those examination guidelines were subjected to the review process and comment process. They were revised in accordance with comments. NIH in particular was very involved in the comment period relative to the utility guidelines, so I think that needs to be remembered as w

So let me close there with one final comment, just a brief one, and that is that I think that the Commission and the Department need to be aware that there has been -- maybe it's a slight note of caution. There has been a very significant amount of discussion and interest in the intellectual property community leading up to these hearings.

I think it may even be fair to characterize it as wariness, particularly in light of how some of the issues were framed. Many folks I think in the IP community feel that the legal and policy issues here are among the most sophisticated and challenging.

And when I was doing my own patent work, I worked in the field of catalyses, where you used to say small changes in structure can make a big difference in outcome, and I think that's the concern that is expressed here as we work to change or modify or improve the system, so I would certainly urge on their behalf a cautious and deliberate approach which

I think certainly seems to be the case so far.

Also there are significant international implications to this that we need to be mindful of. This process does not occur in a vacuum in this, and previous administrations worked very closely with our colleagues overseas to bring harmony and consistency to the law, and in some way it would be a difficult situation if the United States were sending in inconsistent messages on such critical issues.

I hope we also bring others in to the process as well from other agencies in the government, USTR, the State Department, Customs Service and others.

Thank you very much, Mr. Chairman, General, for giving me the opportunity.

(Applause.)

CHAIRMAN JAMES: Just in case anyone is continuing to harbor the notion or doesn't understand that our Patent and Trademark Office is now and always has been in very capable and thoughtful hands.

Our next speaker, Gerald Mossinghoff, is also a former Assistant Undersecretary of Commerce and Commissioner of Patent and Trademarks.

Now, among other things, he brings to us an impressive level of international experience in this area. He was the United States Ambassador to the Diplomatic Conference on the Revision of the Paris Convention and

Chairman of the General Assembly of the United Nations World Intellectual Property Organization.

On the domestic side, Mr. Mossinghoff played a key role in advising President Reagan regarding the establishment of the Federal Circuit, and I believe his remarks today will address on that along with other important topics in the international area.

(Applause.)

HONORABLE GERALD MOSSINGHOFF: Thank you very much. I'm very honored to be able to participate in these very important hearings.

My name is Gerald J. Mossinghoff, and I am senior counsel to the Arlington intellectual property law firm of Oblon, Spivak, McClelland, Maier & Neustadt. In addition to that I teach intellectual property because at the George Mason School of Law and the and the George Washington University Law School.

During President's first term, I served as Assistant Secretary of Commerce and Commissioner of Patents and trademarks. During that time, we were able to achieve significant progress in the protection of intellectual property. With bipartisan support across the three branches of government, we enacted realistic user fees for the Patent and Trademark Office that led to that office being sufficient, and has been pointed out today, tragically it's more than

self-sufficient. It's a source of income for totally unrelated government programs.

We set goals, ultimately achieved, of reducing the average time of patent pendency to 18 months and trademark pendency to 13 months.

Concrete steps were undertaken toward automating the USPTO's enormous databases leading to the goal of a paperless office. The Court of Appeals for the Federal Circuit was established as we've heard.

We established a formal Trilateral Cooperation arrangement with the European Patent Office and the Japanese Patent Office, and that trilateral cooperation, which will celebrate its 20th anniversary next year, has proved to be extremely useful in fostering cooperation and harmonization both on technical matters and automation in other areas and in broad policy issues.

The penalties for illegal counterfeiting were significantly increased, and effective enforcement measures established.

The Computer Chip Protection Act was amended.

We laid the foundation that led to the United States joining the Berne Copyright Convention.

And we began the steps that led to multinational intellectual property norm-setting being conducted in the GATT as opposed to in the World Intellectual Property

Organization. This resulted in the landmark agreement on trade-related aspects of intellectual property or TRIPS, in the World Trade Organization.

I am convinced that this progress was the direct result of the close cooperation during that period between the Antitrust Division of the Department of Justice, then under the leadership of Assistant Attorney General William Baxter, and the USPTO.

We were in weekly, monthly consultations and cooperation, putting these policy matters together and getting them enacted.

This afternoon, in the brief time available, I'll focus on three what I refer to as blue collar kinds of issues: First, the critical importance of an adequately funded USPTO; secondly the Court of Appeals for the Federal Circuit and the key role it's playing and some of the history that led up to that enactment and establishment; and third, to the suggestion sometimes heard and heard today that maybe there are too many patents being granted and sometimes, somehow we should raise the bar on the number of patents.

The USPTO must be adequately financed in my view if we're going to have effective intellectual property protection in this country. Central to the effective and appropriate patent protection technology is the PTO and the quality and timeliness of the examinations of patent

applications.

Quality depends upon the skill and dedication of the approximately 3,000 patent examiners, properly trained, supervised and mentored and with effective administrative and technical support. For it to do its job properly the office must have the latest in e-government support, but apparently fiscal constraints will deprive the processing of the more than 300,000 patent applications it will receive.

Timeliness depends on adequate resources, and this is another area of great concern. For the past several years, more than $850 million in user fees paid by patent applicants to support the PTO have been diverted to other totally unrelated government programs, and as could be guaranteed, the Office is falling alarmingly behind in being able to cope with its increasing workload.

My back-of-the-envelope calculations are that if the current funding of the USPTO remains constant in real dollars, increasing only by cost of living adjustments, in five years it will take more than three years for an applicant to receive a first action on application, and the overall time of pendency would increase to an average of more than four years, a result which I would submit is totally unacceptable to U.S. inventors and U.S. industry.

There would be a total of 2 and one-half million patent applications pending in the office, with each examiner

having a docket of more than 750 applications as compared to the 100 applications on a typical examiner's docket today. In short, the Office would be swamped.

Undersecretary Rogan, for whom I have the highest regard, can confirm whether these dire predictions are accurate. I believe they are, and steps must be taken now to ensure that they are not realized.

Secondly, I would submit that the Federal Circuit Court of Appeals is an unqualified success. That was established, as Judge Newman pointed out, in a bipartisan effort to bring certainty and stability to U.S. patent law.

Based upon a key recommendation of President Carter's domestic review on industrial innovation, a centralized national court with exclusive appellate jurisdiction over patent related cases was viewed in that review as "a vehicle for ensuring a more uniform interpretation of the patent laws, and thus contributing meaningfully and positively to predicting the strength of patents."

One of my highest priorities as a newly appointed Commissioner of Patents and Trademarks in 1981 was to recommend that the Reagan Administration support that initiative of the Carter Administration. This was by no means assured given the strong opposition of the American Bar Association to the creation of such a "specialized federal court."

At the time I was teaching patent law at American University's Washington College of Law and was all too familiar with the chaotic situation that business executives faced in deciding how, or most significantly where, to enforce their patents. A leader in the research-based pharmaceutical industry summed up that industry's support for the Federal Circuit quite succinctly, "to eliminate geography dependent patent opinions."

Prior to the creation of the Federal Circuit, an analysis of most patent issues would depend on what federal circuit would try the case or hear the case, and such an assumption would often be more significant than the facts themselves.

The Reagan Administration did strongly support the creation of the Court of Appeals for the Federal Circuit, based on, among other things, then Secretary of Commerce, the late Malcolm Baldridge. Having served as a very successful chief executive of Scovill Industries, Secretary Baldridge often expressed in his efforts to establish the court, that successful business executives are able or should be able to manage around adversity. They cannot handle uncertainty.

And as the several federal circuits drifted father and farther apart in their interpretations of key sections of the patent code, the inevitable uncertainty called into question in the Carter Domestic Policy Review the viability

of an effective U.S. patent system for protecting new technology.

The beneficial results of the creation of the Federal Circuit were immediate and felt throughout America's high technology industries. Forum shopping, or more accurately circuit shopping, is a thing of the past. Although in no field as dynamic as patent law can there be 100 percent assurance of the outcome of any case, business executives and their counsel can now look to a coherent and consistent body of case law to guide their fundamental research and development decisions.

My next recommendation is, Don't change the non-obviousness requirement of the patent code. An assertion is sometimes made that there are too many patents being granted, or that patents are overbroad. This leads to an idea, usually very vaguely defined, that we should somehow change the non-obviousness standard to raise the bar. That would be most unwise in my view.

Notwithstanding, non-obviousness is the most important patentability requirement and perhaps the most difficult to apply and probably why it applies. Maybe 80 percent of the patent cases finally reach court. The section is familiar to everyone here: "a patent may not be obtained tho the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between a subject matter sought to be patented and the prior art are such

that the subject matter as a whole would have been obvious at t
time the invention was made to a person having ordinary skill i
the art."

The enactment of Section 103 in 1952 was a reaction to a line of Supreme Court cases in which U.S. patents are with held to be invalid because they lacked "invention." In one celebrated case, Justice Douglas went so far as to state that for a new device to be patentable, it "must reveal the flash of a creative genius."

The Supreme Court's anti-patent bias in the period leading up to 1952 was so pronounced that Justice Robert Jackson in a celebrated dissent complained "that the only patent that is valid is one which this Court has not been able to get its hands on."

In his "Commentary on the New Patent Act," Mr. P.J. Federico, a senior official of the USPTO and one of the principal authors of the 1952 Act, stated as follows: "There has been some discussion as to whether section 103 modifies the so-called standard of invention....While it is not believed that Congress intended any radical change in the level of invention or patentable novelty, nevertheless, it is believed that some modification was intended in the direction of moderating the extreme degree of strictness exhibited by a number of judicial opinions over the past dozen or more years."

The Supreme Court did not reach the issue of proper interpretation of section 103 until 1966 when the Court decided three patent cases often referred to as the Graham trilogy. In Graham the Court pointedly confirmed that section 103 codified the judicially developed non-obviousness requirement. Congress did focus inquiry on objective obviousness and, in effect, directed abandonment of "invention," courts have previously use to encapsulate the obviousness standard.

In Graham, still the leading case studied in all the patent academies and in every basic patent law book, still the leading case, the Supreme Court directed the lower courts and the Patent and Trademark to apply the following test: "Under section 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained." Let me underscore claims. We're not talking about disclosure. We're not talking about where there's a neat invention or not a neat invention. It's the claims that come into issue under the test.

"Against this background the obviousness or non-obvious of the subject matter is determined. Such secondary considerat as commercial success, long felt but unresolved needs, failure of others, etc., might be utilized to shed light on the circumstances surrounding the origin of the subject matter sought to be patented. An indicia of obviousness or non-obviousness, these inquiries may have relevancy."

Notwithstanding the guidance, the regional Circuit Courts of Appeals were all over the lot in interpreting the new section 1023. One of the issues of whether synergism in some form or another was required to satisfy the requirement.

As noted by one patent law scholar, prior to the Federal Circuit analysis of the issue, confusion reigned among lower federal courts as to the proper role of synergism in evaluating non-obviousness.

One of the principal areas of concern that led to the creation of the Federal Circuit Court of Appeals was section 103 and the differences in its interpretation throughout the regional circuits. Although there are clear differences among the several judges serving on the Court of Appeals for the Federal Circuit at the present time, and we could name names and we could name issues if we had to, there are no major differences in the interpretation of section 103.

In one celebrated case, the Federal Circuit relied upon section 103 when it vacated the Seattle district court's preliminary injunction against Barnes & Noble in the famous Amazon.com case.

Thus, with respect to section 103 regarding non-obviousness, three factors have resulted in a workable standard of the patentability, both in the Patent and Trademarks Office by the 3,000 examiners and by the district

court and the court of appeals.

First is the enactment of the section in 1952. Second is the authoritative interpretation of the section in the Graham trilogy of cases, and finally the creation of the Federal Circuit, which in my view is doing an excellent job of interpreting section 103 on a case-by-case basis.

There are now more than 700 Federal Circuit cases interpreting section 103 in dozens of technical contexts. If patent claims are said to be overbroad, I assume that means that they would not be valid under section 103 of the patent code or perhaps section 112 of the patent code, as those sections are now written. Otherwise, I would have no idea what overbroad means.

To attempt now to amend section 103 somehow to raise the bar, whatever that means in any given case, would at the very least result in a generation or two of uncertainty and confusion. Such an attempt would in my view be met with appropriate, vigorous and successful opposition by high technology industry, inventors' groups and the organized patent bar.

The number of patents being granted by the U.S. Patent and Trademark office, a has been pointed out, have increased significantly but I seriously doubt whether the increase has kept pace in research and development.

In the research-based pharmaceutical industry, for

example, R&D expenditures have increased more than ten-fold in the past 20 years, from 2.3 billion in 1981 to more than 30 billion in the year 2001, and patents granted in the pharmaceutical field, although substantially increased, have not at all kept pace.

In 1981, we had 2017 such patents granted as compared with 6,751 patents in the year 2000. So a ten-fold -- more than a ten-fold increase in R&D was met with a three- or four-fold increase in the number of patents in the pharmaceutical world.

Of course many of these patents covered new lifesaving and life-enhancing medications that simply would not have been invented except for the incentives provided by the U.S. patent system.

I am certain that the pattern of the research-based pharmaceutical industry is repeated in many other important fields of technology.

Mr. Chairman, this concludes my prepared statement.

Mr. James J. Kulbalski, a partner at Oblon Spivak, is is submitting a statement in connection with these hearings on patent pooling and technical standards, perhaps a little more directly related to the subject matter.

I hope that his statement and these comments have been helpful to you. Thank you very much.

CHAIRMAN JAMES: Rich Gilbert is the father of the intellectual property guidelines, which he helped shape, when h

was Deputy Assistant Attorney General for Economics in the Antitrust Division at the Department of Justice.

His interest in developing those guidelines is hardly surprising given that he is the author of a wide body of scholarship on economics, intellectual property and antitrust. He's now professor of economics at University of California, Berkeley, where he continues to be at the forefront of these and other issues.

And he certainly is someone that I've learned from over the years. Please welcome Rich Gilbert.

MR. GILBERT: Thank you.

Well, I will briefly discuss the recent history of thought about the appropriate role of antitrust policy for intellectual property, and then I will also work through a particular example and propose a Rule of Reason approach to a particular issue in IP licensing.

But before I start, I want to comment on an issue of prior art and the problem of accumulating a database on invention position, and to do that I want to draw on one of my favorite scholars of innovation, and that's Gary Larson. (Shows slide.) There's a very large beast upside down with a very, very small arrow in its belly up here and these two cavemen saying, Well, maybe we should write that spot down.

So I want to suggest this to you, to our friends at

the Patent and Trademark Office to keep this in mind. If you get a patent for a process to bring down mastodons, it might actually be written down there in the prior art.

Okay. Let's go on and talk about the development of key principles and how they have evolved between the 1988 and the 1995 Intellectual Property Guidelines. The 1988 Guidelines were really a watershed event. There was the International Guidelines with a section of intellectual property licensing. They introduced important concepts that really defined and redefined the way that antitrust scholars think about intellectual property.

We heard about the famous Nine No-Nos, and they were quite a revolution in thought. The key principles in these guidelines were three. First for the purpose of antitrust analysis, the agencies regard intellectual property as being essentially comparable to any other form of property.

Now, what this meant was not that intellectual property is the same as other forms of property. It clearly is not the same. It differs in very important and material respects, as has been identified earlier by Bob Pitofsky, and of course there's statutory limits and statutory prerogatives on the use of intellectual property, but in terms of how to analyze intellectual property issues, the same principles apply.

Secondly, the agencies do not presume that intellectual property creates market power in the antitrust context. I don't think this is a very controversial point, notwithstanding Jefferson Parish v. Hyde, but at the time, in 1988 this was somewhat controversial.

And the third point that the agencies recognize is that intellectual property licensing allows firms to combine complementary factors of production and is generally pro-competitive. That is, licensing is a good thing. We would like to have more of it, not less of it.

Now, in 1995 the overlap between these principles and virtually the identical principles that existed in the '88 Guidelines were a source of some consternation to me, although I find some comfort in the fact that they are so close, and I think our thinking has helped up in a durable and nonpartisan way over these years on these basic principles.

Now, the '88 Guidelines also said or advanced a particular way of thinking about intellectual property, by advancing the principle that the owner of intellectual property is entitled to enjoy whatever market power the property itself may confer and also saying the Department will not require the owner of technology to create competition in its own technology.

In effect, this principle was that if there's a

demand curve, think of a demand curve, for the products or processes that used the license to intellectual property that the IP owner is entitled to appropriate the area underneath this demand curve.

This actually was a departure from recent thinking about cases such as the shrimp peelers cases which challenged the ability to issue royalties of discriminatory rates to reflect competition against different types of technologies, so this was quite an advance in itself, but there's a difficultly with this approach, and the difficultly is market power depends on conduct, which of course may be anti-competitive.

So there can be anti-competitive conduct such as exclusive dealing arrangements on the use of competing technologies which shift the demand curve out, and yet this principle you're entitled to the area under the demand curve, that is to the market power that the IP itself confers then becomes circular and somewhat ambiguous so in the '95 Guidelines this principle was changed.

The part about the IP owner not being required to create competition in its own technology was retained on the whole, but then we substituted a different concept which was that antitrust concerns may arise when a licensing arrangement harms competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the license.

I just like to use a shorthand competition in the absence of the license, has that been effective, so if we go back to this area underneath the demand curve, if we have the licensing market on the left, and you think of there being some different market. Now, if there are practices and those practices effect say competitive conditions in that other market, suppose it shifts the supply curve to the left and leads to a higher price, that might shift the demand for the licensed product out because the higher price increases the demand for the licensed product, and now you have to weigh those competitive effects in that market against whatever has happened in the licensing market to see if on balance that is an issue that the antitrust agencies should be concerned about.

So now there are a number of different issues on an antitrust intellectual property agenda. There's been a great deal of learning at the agencies on intellectual property issues. A lot of very fine minds have been devoted to these issues, and we've had experience with a number of antitrust cases and merger cases, and yet there's still a number of areas where some more thinking is necessary and where some definition of past thinking would be appropriate.

For example, should antitrust policy differ for intellectual property? Again Professor Pitofsky talked about this, the arguments for and against, how to deal with

combinations of allegedly blocking patents, patent settlements, cross-licensing and unilateral refusals to deal, standard setting and competition in winner-take-all markets, network effects, and I would also add to this list the general issue of whether market power is good for innovation and whether that justifies certain transactions that otherwise would raise concerns.

Now, it's a tall order to deal with these things, and I would like just as an example more to serve as a target for criticism than anything else to propose a rule of reason analysis to you for one of these issues, and that's how to deal with combinations of allegedly blocking patents.

There's been a noisy message from the agencies on this issue. We've heard about the MPEG, digital vertical disk, the Motion Picture Entertainment Group, these were standards that were formed by an association of parties who cross-licensed their patents to enable these technologies.

And the message from the Department of Justice in the form of business review letters was that it was alright to aggregate these essential, that is, blocking, technologies, but then we also have some other cases at the FTC. There was the VISX case where the pool was dissolved, and it involved some alleged blocking patents, others alleged to be substitutes.

The same with Ciba-Geigy-Sandoz, and this merger having to do with gene therapy technologies. There were

concerns raised about aggregation of patents, which again were to some extent substitutes and also to some extent blocking as well.

How can we think about these? I propose the following elements for an approach, and I should add my thinking here is informed by many conversations I've had with my colleagues at Berkeley, including some colleagues who are either recently or currently in active duty in the government and also past conversations at DOJ with colleagues like Greg Werden and others, and so -- but again this is all my thinking.

I don't blame anybody else, and you'll probably want to insulate yourself from anything I would say anyway, but if you think of the key elements of the approach, first what is the probability that blocking patents would be found invalid or not infringed?

I'm going under the premise that however we feel about the desirability of patent rights, I'm going under a premise that if patents are, in fact, invalid or not infringed, then they should not limit competition that would otherwise occur. They should be in fact challenged.

The second point is benefits from competition if patents are held to be invalid or not infringed, so if it is the case that they truly should not be patent-right protected in these areas, one of the benefits that would occur in its

absence, and third, are the benefits from combining the patents in the pool itself?

And if do I this correctly, it is an application of the analytical principles of competition in the absence of the arrangement which is in the IP guidelines, so I want to introduce a little concept. One times two, that is the probability that the patents will be held invalid times the competitive effect which is the expected competition that would have occurred in the absence of the licensing arrangement.

And the third is the benefits of the licensing arrangement, and these are the two sides of the rule of reason balancing that I think is accepted practice in antitrust these days.

Just to do a little bit of mathematics, and I'll go through this very quickly, just define N as the number of independent blocking patents. P is the probability that a single patent would be held invalid or not infringed, and I want to make the important assumption that this is the same for all patents, and that it's independent, so showing one to be invalid doesn't necessarily say anything about any other patents.

C is the reduction in prices from competition which I can measure as a percent of revenues on an annualized basis, and E is the efficiency from combining the patents as a

percent of revenues. And it leads to a simple formula, which is that aggregation passes a rule of reason test. If E over C is greater than P to the N, and E over C and what I'm calling the efficiency ratio, it's a ratio of efficiency to competitive effects, and P to the N is just the aggregate probability that there would be competition in the absence of the pool.

Now, it's something that's fairly obvious. P to the N, a reasons N goes down very quickly, so I have here three graphs corresponding to different probabilities of any one patent beir held invalid, and I will note a recent study by Allison and Linley showed that in a sample of 300 tested patents, half of them wer shown to be invalid, in litigation.

So of patents that were litigated in this period, I think which was '86 to '89, half of the patents were shown to be invalid, so a number of P around a half is one plausible starting point, but you can take a smaller number or a higher number.

If the number is smaller it goes down much quicker. If the number is higher, it goes down slower but my main conclusion is very simple, for any reasonable P once you get beyond a large number of patents, the probability of competition in the absence of the pool gets very low.

So what are some conclusions? Another way of saying this if I can go back here is that the required efficiency

ratio. Let's take the example, the MPEG pool contained 27 patents that were claimed to be essential to practice the technology. That is 27 blocking patents.

Now, if you go out here to 27, it really didn't matter what the probability is of the success of an individual patent. It's pretty close to zero, that there would be competition in the absence as long as these patents -- as long as their validity is independent of each other. That is they're not highly correlated.

So the conclusion here, well, first I would say is that assertion of patents, an assertion that patents are blocking is not in my view sufficient to indemnify a combination from antitrust scrutiny because there is a high probability that litigated patents are found invalid or not infringed.

So merely saying I have a blocking patent is not enough if we believe that the truth is in the ultimate test of litigation over validity. Chances are that's an invalid patent. It's just as high as the chances are that it's a valid patent.

Secondly, it's not necessary in my view for the agencies to conduct a full scale review of patent scope and validity to assess the antitrust risk from combining patents. Because a probablistic approach, which is what I've just described, should be sufficient to estimate competition in

the absence of the combination, and there are some combinations where I would argue that the likelihood of competition is so low that it becomes in my view a fairly easy antitrust analysis.

Second, I would also point out another fact here, which I believe is at least the makings of a recommendation I have to the agencies, and that's the private incentive to challenge patents is less than the expected social return. The users of patented technologies, if they choose to contest the validity of a patent, they're going to appropriate only some of the benefits of the a successful challenge, but they pay the full cost, so there's a large spill-over cost.

The benefits, first of all, are shared with other licensees. Secondly, consumers benefit from the competition that's created if the patent is shown to be invalid, and again I'm going under the premise that an invalid patent is one that none of us would like to enforce.

And then I could add to this also there are dangers that the parties who might be affected by a patent validity directly might have incentives that would be settled, and there's a coordination problem that adds to that which is each user wants someone else to challenge the patents. No one wants to pay the cost.

It's much better to have a patent proved invalid and

not pay for the cost of proving, and the cost as we know is not at all trivial. There's a coordination problem, and it's particularly severe when there are many patents and many patentees, so I have a not-so-modest proposal here, which is the antitrust agencies at least consider expending some of their scarce resources to challenge suspect patents when those spill over benefits and coordination problems are particularly large and also settlement specific efficiencies are small, that is when you think that this rule of reason test is likely to be -- to call for enforcement, or when we think that there are particular coordination problems that would lead to findings of validities, of invalidity or not infringement and the parties do not have an incentive to establish that fact or parties external to the arrangement also do not have an incentive to establish that fact.

That's my proposal. Thank you very much. I'm very happy to be here and address you.

(Applause.)

CHAIRMAN MURIS: Thank you, Rich. We come to our final speaker. Richard Levin has accomplishments far too numerous to list. He's the president of Yale University. He's the president not embroiled in major controversy at the moment, at least not that I've read in the Washington Post. He also professor of economics, specializing in the economics of technological change. Of great relevance to us today he's the

coauthor of a well-known and crucial 1987 study entitled "Appropriating the Returns from Industrial R&D."

Also at the moment he's co-chairing a very important study, as I mentioned earlier, at the National Academy of Sciences, examining the operation of the patent system and its effect on new technologies or newly patented technology.

Please welcome President Levin.

(Applause.)

PRESIDENT LEVIN: I'm very pleased to participate in this opening session of these important hearings, and I'm especially honored to share the platform with the distinguished public servants who have shaped and who now are shaping the interpretation and enforcement of the nation's antitrust and intellectual property laws.

As the Chairman indicated, my involvement today derives from two personal experiences. In the 1980s, with the support of the National Science Foundation, the plug for the importance of funding scientific research, I directed a substantial research program at Yale on the economic impact of intellectual property, and currently I co-chair a committee on intellectual property rights in a knowledge-based economy, as you said, under the auspices of the National Academy's Board on Science, Technology and Economic Policy. Both these experiences I believe provide insights that are relevant to the subject of these joint FTC/D(

hearings.

The centerpiece of our research in the 1980s was a survey of 650 executives responsible for research and development in 130 different industries. This survey, which I developed in collaboration with my Yale colleagues, Alvin Klevorick, Richard Nelson and Sidney Winter, sought to characterize both the opportunities for technological advance and the capacity for firms to appropriate the returns from their investments in research and development.

The most striking and perhaps the most influential finding from the data that we collected in the mid-1980s was that the role of patents differed significantly across industries and technologies.

In most industries, firms reported that being first to market with a new or improved product and supporting their head start with superior marketing and customer service most effectively protected the competitive advantages of their R&D. In these industries, patents were not regarded as highly effective in protecting a firm's competitive advantage.

By contrast, the pharmaceutical and certain other chemical industries were striking exceptions. In these industries, patent protection was deemed to be far and away the most effective means of appropriating the returns from research and development.

Despite significant changes in patent law during the ensuing years, a follow-up survey conducted in the late 1990s by Wesley Cohen, Richard Nelson and John Walsh essentially replicated our findings.

Now, the perceived value of pharmaceutical and chemical patents derived in part from the nature of the technology. In the 1980s, the valuable and effective patents in these industries gave exclusive rights to a particular chemical compound, a specific molecule typically. In such cases, patent rights were relatively easily enforced, and the rights to one patented molecule were rarely required to obtain or practice a patent on another molecule.

Now, in contrast to this discrete nature of chemical and pharmaceutical products, in other key technologies, such as microelectronics, telecommunications and computers, it was cumulative. Virtually any advance, even then and even more so today, required access to a bundle of prior patents.

The circumstance had its roots as early as the very beginning of the microelectronic era, when access to the Bell Labs' transistor patent was required to develop virtually any new product. It continued through the early years of the integrated circuit era when industry participation typically needed to license the fundamental product patent from Texas Instrument and the fundamental process patent from Fairchild.

By the early 1980s the semiconductor firms already had well-developed practices of cross-licensing their entire patent portfolios and determining the net flow of royalties by scoring the most important patents in each portfolio.

Today with the widespread use of patented research rules and the attendant need for cross licensing, the pharmaceutical and biotechnology industries are moving closer and closer to this cumulative technology paradigm.

The difference between discrete and cumulative technologies is not acknowledged in the grantuing of patents or in the resolution of patent litigation, and I'm not saying that it should be, but it is a distinction of some value in antitrust analysis. Put simply, in cumulative technologies, cross-license arrangements are a necessary condition of technical progress, a necessary condition of progress.

They should not ordinarily be regarded as anti-competitive unless they are used in a concerted way without sufficient justification on grounds of efficiency to block entry into a relevant product or innovation market.

Now, one more observation about our earlier work that is not in my prepared remarks, but inspired by the observations of Commissioner Rogan and Judge Newman about the importance of the other side of the patent bargain.

The patent bargain is, we grant you this exclusive righ in return for disclosure, and one of the things we found when

looking at the technical opportunity side in our data collection effort, what indeed confirms the importance of this other side of the bargain, that is antitrust analysis is typically looking only at the grant of exclusivity and what potential anti-competitive effects it might have in relevant product or innovation markets.

But in fact we shouldn't ignore the importance of the disclosure element, which our findings, our research found to be quite pro-competitive, that is to say specifically, that those industries that regarded the information contained in patent disclosures as well as the public literature as valuable and informative were the industries with the highest rates of technological progress. Interesting finding.

Let me now turn to the work of our ongoing National Academy's committee, which is investigating the broad economic impact of changes in patent law and administration over the past quarter century, and others have highlighted many changes in both the statutes and court administrative process and structure over those years.

Over the past two years our committees held three conferences and six meetings involving extensive public participation. We've heard from virtually every interested segment of our society with a stake in the effectiveness of the patent system, including most of the speakers on today's program. We've heard from independent inventors, from open

source software developers, from large companies, from lawyers, judges, patent office officials in the United States and Europe, representatives of international organizations, academic economists and academic lawyers and antitrust enforcement agencies.

Now, our committee expects to present its findings and recommendations in September 2002, well after the conclusion of these hearings, so I want to make the point that I very clearly do not speak for the committee which has not yet voted on its consensus recommendations and has not -- and certainly haven't been going through the formal review process at the academy, so I'm speaking directly for myself about some observations of two particular areas of concern that I've learned about through this process.

First, Commissioner Dickinson's comments notwithstanding, there is widespread concern about the quality of patents issued in some newly emerging areas of technology. Now, I will concede that in some respects this concern is inevitable. Almost by definition new areas of technology lack well-developed bodies of prior art in earlier patents and in the published literature.

This makes it difficult for patent examiners to determine whether a claim meets the required test of novelty and obviousness. Still, even an observer as sympathetic as I a to the difficulties faced by patent examiners would find

reasonable basis for concluding that many software patents, including many of those describing computer-enabled business methods, do not meet a common sense standard for innovation.

Now, there are potentially serious consequences from a low threshold for patenting in emerging technology areas. A patent after all does grant an exclusive right and in some cases, not all, but in some cases it can confer power in product in innovation markets.

We should be wary of creating unwarranted market power by granting unwarranted patents, but I would argue the remedy does not lie in placing more rigorous antitrust constraints on the behavior of holders of low quality patents. The remedy is to improve the quality -- is to improve the process of granting and reviewing patents to ensure that monopoly rights aren't conferred on rent seekers who have not truly achieved progress in the useful arts.

Now the Patent and Trademark Office has already begun t take steps, as Todd Dickinson mentioned, to improve the quality of its review in emerging technology areas, improve the quality of its databases, and indeed I would add it has taken steps to improve the qualifications of newly hired examiners in emerging technology areas, but still more resources may be needed to ensure timely and effective review of patent applications.

The courts might also consider to returning to a more

rigorous application of the standard for non-obviousness articulated in the last major Supreme Court decision on the subject, the Graham case. I agree with Commissioner Mossinghoff that changing the statute is not the solution, but a recent study by Lunney in the Michigan Telecommunications and Technology Law Review I think is quite persuasive in documenting -- with all due respect to my devoted alumni, Judge Newman -- recent decisions by the Court of appeals of the Federal Circuit that have tended to substitute the secondary Graham factors for the primary tests of obviousness.

And there are some good examples in that article that show that the standard comes perilously close to saying this: If someone invested money in developing this invention, it must not be obvious. It's the commercial success test.

A standard that diluted runs the risk of rewarding pure rent seeking with rights that should be reserved for socially beneficial innovation.

Another idea worthy of consideration would be to institute a stronger system of post-grant review, and that was mentioned earlier too, under which third parties can challenge the validity of patents, and I would say on grounds other than the narrow ones now permitted under the current reexamination procedures.

A low-cost administrative review procedure might

reduce the need for subsequent costly litigation, and it might also reduce the need for what might turn out to be wasteful investments by those who are later judged to have infringed a valid patent.

A speedy procedure would also have another social benefits, as Rich Gilbert talked about the externalities involved here, that if early review of validity in new technology areas could clarify at an early stage of those technology the appropriate standard of non-obviousness and the scope of permissible claims, this would have signaling benefits to subsequent inventors and to the Patent Office examiners early in the process instead of waiting for a major court decision to come down years late.

The second area of concern that has come to our committee's attention as opposed to this issue about patent quality, the second area is one that more properly needs review I think by the antitrust enforcement agencies.

We heard that increasingly in computer networking, telecommunications and related technologies, we've come to rely on the work of private, not public, but private standard-setting consortia. The work of these bodies is often indispensable for facilitating progress in cumulative technologies. Yet the potential for anti-competitive and exclusionary practices warrant scrutiny.

The antitrust guidelines that Rich Gilbert was part

of developing and took the lead in developing for the licensing of intellectual property I believe offer very intelligent and sensible general guidelines in these areas based on what they say about cross licensing and patent pooling. They're a relevant model for policy in this area.

I would say though that to permit the efficiency enhancing collaborations to move forward and to protect consumers from anti-competitive practices, standard-setting bodies should be subject to appropriately clear, specific and well-crafted antitrust guidelines.

These are just two areas of concern that have come to the attention of our committee. Among others, let me mention the high cost of patent litigation, partly induced by an inefficient reliance upon a number of subjective determinations of intent in this kind of litigation.

A second concern drifts in some areas toward granting patents for discovering facts of nature rather than truly requiring human invention; and a third; wasteful duplication of public resources caused by the failure to achieve full international harmonization of patent law and full reciprocity for searches and even examinations.

These concerns, like those involved in the standards of patentability, I believe are more directly addressed through statutory, judicial or straight competitive changes in the patent system rather than in changes in antitrust law or

enforcement.

Despite all of these concerns that have been raised in the course of our committee's work and then undoubtedly will be raised in the course of these hearings, we must not lose perspective. Innovation is alive and well in the American economy. For more than a half century our nation has led the world in the development of new technologies and the creation of new products.

Our international competitive advantage rests on the unique encouragement that we give to scientific progress through the peer-reviewed, public funding of projects that are located in institutions that combine frontier research with advanced scientific and technological education.

Open entrepreneurial economy, fueled by a vigorous and effective capital market, translates the results of scientific advancement into industrial innovation better than is done anywhere.

Intellectual property rights play a significant role in this progress by protecting the returns to innovation just as antitrust enforcement preserves competition and protects consumers from the abuses of market power. There's always room for improvement.

I trust these hearings will identify some such opportunities, but we should remember that intellectual property and antitrust are only small pieces of the larger

system that by any historical and international comparative standard functions very well indeed.

Thank you.

(Applause.)

CHAIRMAN MURIS: I think we're finished for the day. I want to give another round of applause to our speakers, and to thank everyone for their participation and for your patience.

Thank you.

(Time noted: 4:47 p.m.)

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C E R T I F I C A T I O N O F R E P O R T E R

CASE TITLE: HEARINGS ON COMPETITION AND INTELLECTUAL PROPERTY LAW AND POLICY IN THE KNOWLEDGE-BASED ECONOMY
HEARING DATE: FEBRUARY 6, 2002

I HEREBY CERTIFY that the transcript contained herein is a full and accurate transcript of the notes taken by me at the hearing on the above cause before the FEDERAL TRADE COMMISSION to the best of my knowledge and belief.

DATED: FEBRUARY 13, 2002

DEBRA L. MAHEUX

C E R T I F I C A T I O N O F P R O O F R E A D E R

I HEREBY CERTIFY that I proofread the transcript for accuracy in spelling, hyphenation, punctuation and format.

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