CONFERENCE REPORT ON H.R. 3773, FEDERAL TECHNOLOGY TRANSFER ACT OF 1986

Mr. FUQUA. Mr. Speaker, I call up the conference report on the bill (H.R. 3773) to amend the Stevenson-Wydler Technology Innovation Act of 1980 to promote technology transfer by authorizing Government-operated laboratories to enter into cooperative research agreements and by establishing a Federal Laboratory Consortium for Technology Transfer within the National Science Foundation, and for other purposes.

The Clerk read the title of the bill.

The SPEAKER pro tempore. Pursuant to the rule, the conference report is considered as having been read.

(For conference report and statement, see proceedings of the House of October 2, 1986.)

The SPEAKER pro tempore. The gentleman from Florida [Mr. FUQUA] will be recognized for 30 minutes, and the gentleman from New Mexico [Mr. LUJAN] will be recognized for 30 minutes.

The Chair recognizes the gentleman from Florida [Mr. FUQUA].

GENERAL LEAVE

Mr. FUQUA. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days in which to revise and extend their remarks on the conference report now under consideration.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Florida?

There was no objection.

Mr. FUQUA. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I urge adoption of the conference report on H.R. 3773, the Federal Technology Transfer Act of 1986.

This bill gives us the opportunity to do something very positive about competitiveness, something very positive

about getting the most out of our tax dollars. By changing the rules on how our Federal laboratories do business, this bill will aid our private sector in many ways at no extra cost to the taxpayers.

The conference report is not dramatically different from the original House-passed version of H.R. 3773. The bill has the same main themes. All federally owned, federally operated laboratories if their parent agency so desires, will be able to contract with private businesses, universities, local governments and others to solve problems of mutual interest. The Federal Laboratory Consortium [FLC] will be formally established at the National Bureau of Standards rather than at the National Science Foundation. However, the Federal Laboratory Consortium will still be the facilitator of the transfer of Federal inventions and ideas into the private sector that was envisioned in the House-passed bill. The bill in its present form still requires all agencies to setup programs to reward their most innovative researchers for their most exceptional contributions both to mission work and to the development of laboratory ideas with commercial potential.

What is new in the bill is a series of expansions, additions, and procedural modifications to the House-passed bill none of which are fundamental in nature. Additional minor responsibilities are given to the Secretary of Commerce and the Federal Laboratory Consortium for technology transfer. Inventors whose inventions produce royalties for the Government are now allowed to share in those royalties under one of two alternate plans. A small Federal Laboratory Consortium program of grants to local technology transfer organizations is established. The House-passed requirement of agency plans for implementation of the cooperative research authority is dropped in exchange for a series of preferences which accomplish the same purpose. The integrity of the House-passed bill has been preserved and H.R. 3773 indeed has been strengthened by the Senate's and conferees' careful review.

There is one specific subsection I feel could use some additional explanation beyond the statement of managers. The alternate section is intended to give agencies a great amount of leeway in setting up a program of rewarding inventors. Agencies are encouraged to experiment, to setup programs which they feel met their unique circumstances as long as the program includes both a lump sum payment to inventors each year royalties are received on the inventor's invention and also a percentage share of royalties when receipts exceed a level that is set by the agency. For instance, an agency in its discretion could setup a first year lump sum payment amount that is different from the amount paid in subsequent years or it could choose to make its largest lump sum payment to the inventor in the year of licensing rather than when royalties are received and have that payment count toward the requirement of 15 percent of royalties going to the inventor.

In closing, I urge my colleagues to endorse the work of your conference committee.

Mr. LUJAN. Mr. Speaker, I yield myself such time as I may consume.

I rise in strong support of accepting the conference report on H.R. 3773. One of the central themes running through our debates this Congress has been the need to make the United States more competitive economically.

There are many steps that must be taken to achieve that improvement. One of the simplest and most obvious is making better commercial use of the unparalleled advances in basic science and engineering being made in this country.

One example should suffice to show the importance of this step. An article in last week's Wall Street Journal began as follows:

Clifford Hesseltine's experience as U.S. Government scientist was classic. He did some research on toxins, published results that caught the eye of industrialists with a problem, and won a Government citation for saving an industry.

The citation was the Third Order of the Rising Sun, bestowed on behalf of the Emperor of Japan, in recognition of Mr. Hesseltine's service to Japan's soy sauce brewing industry.

This bill is designed to prevent the recurrence of similar embarrassments in the future. It is the culmination of years of work, going back at least as far as the Packard Commission on Federal laboratories in 1982, which noted the untapped potential of Government laboratories to help American industry.

This bill attacks the problem in several ways. First, it allows Federal laboratories to work with industry, nonprofits, and other levels of government on research and commercialization of inventions. The bill replaces statutory hindrances to cooperation with statutory encouragement.

The bill recognizes the importance and fine work of the Federal laboratory consortium [FLC], the ad hoc organization of Federal labs that acts as a networking agent to promote technology transfer. It gives the consortium a basis in statute, a steady stream of income and a permanent home.

Finally, the bill gives Government employees an incentive to work on projects that have commercial potential.

Although agencies have the authority to make cash awards to innovative scientists, this authority has been little used. In the 31-year period between 1954 and 1985, for example, agencies other than NASA made only nine invention awards that required approval of the Office of Personnel and Management; that is, awards of more than $5,000 before 1978 and more than $10,000 since then.

This bill guarantees that Federal inventors will receive a share of the royalties from the licensing of their inventions. Agencies can either guarantee a 15-percent royalty share to each of their inventors, or can propose an alternative that will give the agencies greater flexibility in deciding how to reward inventors through a combination of lump-sum cash payments and royalty shares. However, under the alternative, total payments to all inventors must exceed 15 percent of an agency's royalty income.

Royalty payments were the stickiest issue in the conference. The Senate wanted to guarantee inventors a share of the royalties. The House wanted to ensure that agencies could tailor royalty payments to the peculiarities of their labs. This compromise fulfills both those goals.

The bill makes clear that royalties should also be used to reward other members of the laboratory team who help bring inventions to commercialization.

At long last, we have a bill that provides both the institutions and the individuals the incentives needed to put our more than 700 Federal labs to work for the American economy. I urge my colleagues to support this conference report.

□ 1730

Mr. LUJAN. Mr. Speaker, I yield such time as he may consume to the gentleman from Illinois [Mr. MICHEL]

(Mr. MICHEL asked and was given permission to revise and extend his remarks.)

Mr. MICHEL. Mr. Speaker, as one of the authors of H.R. 3773, the Federal Technology Transfer Act of 1985, I rise in support of the conference report and strongly urge its adoption.

The Federal Technology Transfer Act is designed to increase research cooperation between Federal laboratories and private entities, and would help clear the way for greater commercial use of the ideas and inventions resulting from such research.

At present, we have some 380 Federal laboratories, in such diverse fields as health, space, energy, agriculture and defense. They spend upwards of $17 billion a year, and employ one sixth of the Nation's research workers.

Yet, despite this major effort, the National Governors' Association concludes in a recent report that "these national laboratories are far from having begun to realize their full potential as catalysts for close industry university research cooperation or as collaborators in joint university/industry research."

This is particularly damaging when it comes to our competitive position in the world market. We all know what our trade deficit is. We all know how our position as world leader in the areas of technology, innovation, engineering, and manufacturing has been eroding. While there are many reason

for this, certainly one of the significant ones is the failure of our industry to consistently translate new technology into competitive products.

But while many companies may not be fully taking advantage of our Nation's research, foreign nations have no qualms in this regard. Much of the research which is not being used domestically is in fact being used abroad. Foreign countries have access to any research that is not patented or licensed for use in this country, and many foreign governments, particularly the Japanese, are taking full advantage of this.

This was brought home graphically to us in my own district, where they tell me that Japanese representatives are frequently seen prowling the halls of the agriculture research lab in Peoria looking for ideas. In fact, one of the scientists in that lab was awarded a medal by the Japanese Government for helping to solve some of their agriculture problems.

Now, I have no problem with our being a friendly neighbor, but when other nations use our research to better compete against us by developing products which they in turn often import back into the United States, I think that's going too far. It's time we take steps to turn this situation around, and that is what this bill is designed to do.

The Federal Laboratory Review Panel of the White House Science Council has recommended greater collaboration between Federal laboratories and industry. But if industry is to become involved and provide resources and capital, it must be able to protect its investment through patent and licensing rights. Without this protection, such investment and ultimate commercialization of a research product will not take place.

I became particularly aware of this problem, and undertook the introduction of this legislation as a result of a collaborative effort that is being undertaken in my hometown of Peoria.

The Peoria Economic Development Council is presently organizing an Agriculture Research and Development Consortium which would pull together a number of corporations involved in agriculture research along with the Department of Agriculture Regional Research Laboratory in Peoria and several universities for the purpose of undertaking combined research endeavors. It is also expected that venture capital will be provided to turn the research findings into usable commercial products. The potential for jobs and new business investment is considerable.

I should also mention that the Illinois Legislature has enacted legislation which provides $50 million in low-interest bond funds for agriculture research and development. This indicates the importance which the entire State of Illinois places on cooperative research endeavors. For this State program to become effective, Congress must enact this measure.

This bill will help us become more competitive in the world market, increase the use of federally funded research, and assist in the creation of additional jobs in this country.

The conference report represents a reasonable compromise between the House and Senate versions of the bill. The most controversial area was the issue of whether a specified royalty percentage should be awarded to Federal inventors, as the Senate provided, or whether it should be left up to the laboratories—the House position. The conference report comes down closer to the Senate position, in that it goes with a 15-percent royalty sharing percentage for the inventor, but waives that provision if an agency chooses to develop its own plan for rewarding inventors.

Some business groups seem to feel that such a mandated royalty percentage would set a standard which the private sector would have to follow as well. I don't think that's the case. I know that's not the intent of the conferees. Besides, most businesses normally allow Government practices to be used as precedents only when it serves their own interests, so I think some of the expressions of concern in this regard ring a little hollow.

This is a good conference report which will enhance our Nation's competitive position, and I urge its adoption.

Mr. Speaker, I certainly want to compliment the chairman, the distinguished ranking member, and the gentleman from New York [Mr. LUNDINE], the gentleman from Florida [Mr. FUQUA], the gentleman from New Mexico [Mr. LUJAN], and the others who have been so helpful in getting this legislation moved through the Congress and finally to see its full fruition by way of the conference report.

Mr. LUJAN. Mr. Speaker, will the gentleman yield?

Mr. MICHEL. I yield to the gentleman from New Mexico.

Mr. LUJAN. Mr. Speaker, I just want to take this time to congratulate the gentleman on introducing this legislation. It is something that has been needed for a long, long time. That is the way to get technology out into the private sector and for the benefit of our citizens, and so I congratulate the gentleman on introducing this legislation.

Mr. MICHEL. I thank the gentleman. It was a pleasure for me to testify before the committee earlier in the year, and I just felt all along that as a government we really had our head in the sand by doing all this research for which I was responsible in part for helping to fund through the Appropriations Committee process for many years, and then seeing that research simply lying on the shelves, for what reason we do not know. Now we are bringing it together, hopefully to put it to good work, and I am very happy to see it all happen.

Mr. FUQUA. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I would also like to join in my compliments to the distinguished minority leader for his efforts in bringing this bill about, and hopefully, as he elucidated in his comments, we will bring about, as a result of that, more information becoming available in the marketplace so that it can be commercialized.

I again congratulate the gentleman, and express my thanks for his support and help.

Mr. Speaker, I yield 3 minutes to the gentleman from New York [Mr. LUNDINE], a distinguished member of our committee.

(Mr. LUNDINE asked and was given permission to revise and extend his remarks.)

Mr. LUNDINE. Mr. Speaker, I rise today to urge the adoption of the conference agreement accompanying H.R. 3773, the Federal Technology Transfer Act of 1986. This legislation is designed to promote technology transfer from the Federal laboratories and represents a reasonable compromise between the legislation passed by the House last year, and the measure adopted in the other body in August. It enjoys strong bipartisan support in both Houses and deserves our approval here today.

It is clear that if the United States is to regain its position in the international marketplace, we will have to do a better job of translating new technology into competitive products. One way the Federal Government can contribute to this process is by promoting more effective utilization of technology produced by Federal laboratories. The Federal Government funds approximately half of this country's total research and development and much of this work is performed in Government-owned laboratories. The President's Commission on Industrial Competitiveness agreed and recommended that the Federal Government manage its research and development with more concern for commercial application and competitiveness.

In my view, the Federal Technology Transfer Act takes a step in this direction by promoting more effective utilization of the technology produced by Federal laboratories and encouraging cooperative research agreements between government operated laboratories and industry. The scientific and engineering expertise, the technology base, and the facilities and equipment within these laboratories are valuable national resources. This legislation allows these resources to be more readily shared with private companies wishing to develop new products and with local governments in need of technical solutions to their problems.

First, H.R. 3773 would give Federal agencies clear authority to permit their laboratories to conduct coopera-

tive research with universities, industry, industrial development organizations, units of State and local government and others. Interest in cooperative research is increasing especially from State and local technology transfer organizations. These relationships should be encouraged and easier access to Federal technology permitted.

These cooperative agreements would be subject to a few conditions as proposed in the House measure. In negotiating agreements, preference must be given to business units located in the United States which agree that products embodying inventions made under the cooperative research and development agreement will be manufactured substantially in the United States. I feel that taxpayer-supported Federal technology should be used to create jobs and income at home, not abroad. A small business preference is also included.

In addition, Federal laboratories would have the authority to negotiate patent rights and licensing agreements with the collaborating party in an agreement.

Second, to further promote technology transfer from the Federal laboratories, the proposal formally recognizes the Federal Laboratory Consortium for Technology Transfer. The consortium is currently an ad hoc organization of representatives from over 300 Federal laboratories representing 11 Federal agencies. It has been the principal body during the last decade for networking between Federal laboratories and for facilitating technology transfer from the Federal sector. The effectiveness of the Federal Laboratory Consortium has been limited only by the resources available to it as an ad hoc organization.

H.R. 3773 recognizes the important contributions being made by the Federal Laboratory Consortium and the need to enhance the consortium's capabilities. This is accomplished by providing a temporary source of funding for the FLC and a Washington presence within the National Bureau of Standards, not by altering the present nature of the consortium as an organization of technology transfer officials from throughout the Government.

Finally, the proposal will provide incentives for Federal laboratories and their employees. Agencies will share some of the royalties earned from Federal inventions with the scientists and engineers who created them and with their laboratories. At the same time, agencies will have some flexibility in designing their awards programs.

If this authority is used effectively, incentive awards programs will encourage creativity and innovation among scientists, engineers, and technical personnel of the Federal Government. They will also boost employees morale and productivity by making individuals aware that their contributions to technology transfer are important.

In conclusion, I believe that this country's ability to provide high quality jobs and a higher standard of living for ourselves and our children depends on how well we promote technological innovation. The measure before us today is a step in the right direction. It will help put technology to work to create jobs and I strongly urge its adoption.

□ 1740

Mr. LUJAN. Mr. Speaker, I yield such time as he may consume to the gentleman from New York [Mr. BOEHLERT].

(Mr. BOEHLERT asked and was given permission to revise and extend his remarks.)

Mr. BOEHLERT. Mr. Speaker, I rise in strong support of this conference report. The Technology Transfer Act of 1986 is designed to improve our economic competitiveness by tapping the talent that has been somewhat bottled up in our 700 some-odd Federal labs.

The United States continues to be the world leader in scientific research, yet, disturbingly, we lag behind our allies in applying the fruits of our research. American science and technology has been more often transferred overseas than around the corner.

This bill should reverse that situation. It encourages Federal laboratories and their scientists to work more closely with private industry and to be sensitive to the commercial applications of their work.

The bill also would provide a permanent home and a predictable source of funding for the Federal Laboratory Consortium. This group has been doing an exemplary job of bringing Federal science to the outside would, despite the organization's fragile, ad hoc structure.

The House and Senate committee staffs have labored long and hard to hammer out a compromise that provides definite economic incentives to promote technology transfer, while allowing each laboratory to tailor the system to its needs.

Mr. Speaker, I think this conference report and the whole bill, the whole process demonstrates what positive can be accomplished through good, bipartisan cooperation. What we have before us today is a tribute to the innovativeness and to the tenacity of the distinguished minority leader, the gentleman from Illinois [Mr. MICHEL] and the gentleman from New York [Mr. LUNDINE] my colleague on the committee. We need this bill to help our economy and I urge my colleagues to support it.

Mr. WALGREN. Mr. Speaker, I rise to support acceptance of the conference report on H.R. 3773, the Federal Technology Transfer Act of 1986 and urge my colleagues to give this legislation their wholehearted support.

For most of the 20th century the United States has been the undisputed world leader in new product development. When we studied history as school children we learned of the many American inventors who came up with the products and processes that make up modern life. These Americans, often from humble beginnings through sweat and tenacity transformed an idea into a commercial product and sometimes into a major company bearing their name.

Recently, we have slipped. While we still are probably the most creative people in the world, we have lost something in the implementation phase. All too often an American invention, like the videocassette recorder, becomes a commercial reality overseas rather than here at home.

In H.R. 3773 we partially address this problem by making the national laboratories more available to American industry. One out of six American scientists and engineers works for the Federal Government in a Federal laboratory. These 700 laboratories with a combined budget of over $18 billion wrestle with every kind of scientific problem imaginable ranging from a better understanding of the basic laws of physics to the problems of modern manufacturing. Yet foreigners seem to be more aware of this gold mine of ideas than Americans do. Lab employees frequently tell us that while the Japanese are constantly at their doors, it is relatively unusual to find American companies looking to them for new ideas to develop.

H.R. 3773 looks to correct this problem in a number of ways. It authorizes all Federal laboratories, with their agency's consent, to enter into cooperative research arrangements with U.S. industry, universities, local governments, and other interested parties to solve problems of mutual interest. It enhances the position of technology transfer officers in the Federal laboratories with the goal of increasing the number and quality of ideas moved from the laboratories into the American private sector and into commercial development. It formalizes a voluntary association of Federal laboratories called the Federal Laboratory Consortium for Technology Transfer (FLC). FLC is given money through a set-aside to become a clearinghouse for businessmen with technical problems and to continue its present activities including teaching technology transfer officers to do their jobs better. H.R. 3773 also provides rewards to creative people in the laboratory for contributions to the mission of the laboratory and royalty sharing for inventors whose ideas bring income to the Government.

H.R. 3773 is clearly a significant step in the right direction and a bill we approved unanimously last year. Let's vote for a more competitive America by approving the conference report.

Mr. LUJAN. Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

Mr. FUQUA. Mr. Speaker, I have no further requests for time, I yield back the balance of my time, and I move the previous question on the conference report.

The previous question was ordered.

The conference report was agreed to.

A motion to reconsider was laid on the table.

FEDERAL TECHNOLOGY TRANSFER ACT—CONFERENCE REPORT

Mr. STEVENS. Mr. President, I submit a report of the committee of conference on H.R. 3773 and ask for its immediate consideration.

The PRESIDING OFFICER. The report will be stated.

The legislative clerk read as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 3773) to amend the Stevenson-Wydler Technology Innovation Act of 1980 to promote technology transfer by authorizing Government-operated laboratories to enter into cooperative research agreements and by establishing a Federal Laboratory Consortium for Technology Transfer within the National Science Foundation, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses this report, signed by all of the conferees.

The PRESIDING OFFICER. Without objection, the Senate will proceed to the consideration of the conference report.

(The conference report will be printed in the House proceedings of the RECORD.)

Mr. HOLLINGS. Mr. President, the conference report now before the Senate is a truly historic piece of legislation. At a time when the U.S. economy faces unprecedented foreign competition, the Federal Technology Transfer Act will help government, industry, and academia work together to maintain America's technological leadership.

The Federal Government spends tens of billions of dollars annually on research and development. Federal laboratories alone spend some $18 billion and employ one-sixth of the Nation's scientists and engineers. Of course, the Federal Government makes this huge investment to serve public needs, particularly in the areas of defense, health, and space. But in the process, laboratory scientists and other federally supported researchers create a wealth of unclassified inventions and ideas which, if properly used, could be of enormous help to State governments and American industry. Yet, historically, legal barriers and lack of communication have prevented the private sector and the States from taking full advantage of this important national resource. With international competition so strong, we can no longer afford to ignore this technology.

The Federal Technology Transfer Act is the latest in a series of bipartisan initiatives to reduce these barriers. In 1980, the Stevenson-Wydler Technology Innovation Act directed Federal laboratories to create offices to assist in the transfer of Federal inventions and expertise. That same year, the landmark Bayh-Dole patent amendments gave small businesses and nonprofit organizations, including universities, the right to own and develop inventions that result from federally funded research. Until those amendments, most Federal inventions sat on the shelf, never used by American companies or universities. In 1984, these patent rights were extended to those nonprofit organizations that manage federally supported national laboratories. Already, these new laws are resulting in new products that help industry and benefit the American public.

The bill before us today is an important series of amendments to the original Stevenson-Wydler Act. This bill gives Federal agencies the authority to let their "Government-operated" laboratories—that is, laboratories operated by civil service personnel—enter into cooperative R&D work with industry, State government, universities, and others. For the first time, the Nation's almost 700 Government-operated laboratories will have clear authority to work side-by-side with industry and the States to better utilize unclassified Federal inventions and ideas. The agencies and laboratories will decide for themselves how much, and what kinds, of cooperative work to undertake.

This bill in no way reduces national security controls on classified Federal technology. Nor will it cost the taxpayers an additional dime. Any funds for cooperative research will be provided by the non-Federal partner. In fact,

this new law will make money for the Government. When a Federal laboratory licenses an existing or new invention to a company, the laboratory may negotiate royalties. Even today the Government receives about $1.6 million per year in royalties from licensing inventions such as the new AIDS blood test. Royalties to the Government should increase under the new legislation.

Besides allowing Government-operated laboratories to work with non-Federal partners, the bill also has several other valuable provisions. It provides modest, stable funding for the existing network of laboratory technology transfer officers. This Federal laboratory consortium allows a businessman or State official to call their nearest Federal laboratory and, through the network, find out which Federal laboratories throughout the United States have expertise in a given area of technology. The FLC's modest funding is provided not through new expenditures but rather through a small set-aside from the Federal research agencies whose laboratories benefit from the network. The National Bureau of Standards will provide administrative support to the consortium.

The bill also provides that agencies will share some of the royalties earned from Federal inventions with the scientists and engineers who created them. This provision is designed both to reward important work and to provide an incentive for scientists to report patentable ideas which may benefit the country. Agencies are allow great flexibility in designing their royalty-sharing programs.

Finally, the bill contains various conforming and miscellaneous amendments to the Stevenson-Wydler Act.

Mr. President, this conference report results from a remarkable bipartisan effort. The House version of H.R. 3773 passed that body unanimously; its prime sponsors were a Democratic committee chairman and the House Republican leader. A bipartisan group of Senators introduced our version, which later passed this body unanimously. Both the Senate and House have benefited greatly from the work done by the Commerce Department's Office of Productivity, Technology, and Innovation.

Mr. President, all of us who have worked on this legislation see it as a vital step toward better utilizing our national R&D resources in an era of intense foreign economic competition. I am pleased to be an original cosponsor of the Federal Technology Transfer Act, and I urge my colleagues to support this conference report.

Mr. RIEGLE. Mr. President, I am delighted that we and our House colleagues have reached agreement on a conference report for H.R. 3773, the Federal Technology Transfer Act. This important legislation will allow our Federal laboratories to contribute more fully to American industrial innovation and State economic development. At a time when many other countries are challenging our technological leadership, we no longer can afford to ignore the great amount of technology created by the Nation's 700 Federal laboratories.

Federal laboratories exist, of course, to do research in support of Government missions in areas as diverse as agriculture, space, health, and defense. But in the process of serving the Government, Federal scientists and engineers also create a great deal of unclassified technology that could benefit American industry and State development efforts. Over the years, however, less than 5 percent of the almost 30,000 patents granted to personnel in Federal laboratories have been developed into commercial products.

We on the Commerce Committee's Subcommittee on Science, Technology, and Space have long supported efforts to transfer more Federal technology to the private sectors and States. Work on this particular bill began 2 years ago, when it became clear that many Government-operated laboratories—that is laboratories operated by Federal civil service personnel—lacked clear legal authority to enter into cooperative research projects with companies, State agencies, universities, and others. Yet never before have we seen such interest in working with Federal laboratories to commercialize new inventions, to undertake joint research, and to utilize the great expertise of Federal scientists and engineers. Clearly, we needed to reduce the legal barriers that prevent such cooperation.

The conference report before us today is the result of that work. It provides clear authority to Federal agencies to allow their Government-operated laboratories to enter into cooperative research and development agreements with non-Federal partners. It will, in my opinion, open up an entirely new era of American research—one in which Government, industry, and the States work together instead of in isolation of each other.

This bill has several notable features. It gives agencies and laboratories greater flexibility in deciding when to enter into cooperative research ventures, while stating Congress' view that preference should go to ventures which benefit both small business and companies that manufacture within the United States. The bill continues all existing protections for classified information while encouraging our laboratories to share unclassified technology.

This bill will not increase Federal expenditures. The cost of these joint research projects will be borne by the non-Federal partners. In fact, this bill could generate money for the Government by making it easier for Federal agencies to collect royalties on the inventions they license to industry. The legislation also provides rewards to Federal inventors whose ideas result in commercially successful products.

Mr. President, this is an important step toward the better utilization of the taxpayer's investment in Federal technology. The bill enjoys broad bipartisan support, and I urge our colleagues to vote for the conference report.

Mr. BAUCUS. Mr. President, I congratulate the Senate conferees for bringing this conference report to the floor. It is an extremely important bill, because it will do a lot to increase U.S. international competitiveness.

Each year the Federal Government spends $18 billion on research and development conducted at over 700 Federal laboratories. We employ one-sixth of our Nation's scientists in this effort. Yet, 95 percent of the work product of their efforts is unavailable for commercial development.

The Federal Technology Transfer Act of 1986 implements one of the recommendations of the Young Commission Report on Industrial Competitiveness by making it easier to transfer technology out of the Federal labs and into the marketplace.

This bill grants blanket authority to all Federal laboratories to set up cooperative research-and-development agreements with businesses. As Timothy Smith reported in the Wall Street Journal on October 1, 1986, "It will provide money to expand a communications system linking Federal labs, and giving businesses centralized access to a smorgasbord of government research."

Most importantly, the bill will create incentives for Federal researchers to stay on the job by requiring agencies to share at least 15 percent of the royalties received from their patents.

Mr. President, in his book "The Zero Sum Solution," economist Lester Thurow stated that the essence of comparative advantage is not static relative factor endowments or natural resources, but the creation of dynamic technological or efficiency advantages.

Comparative advantage is not something inherited. It's created—as the Japanese are doing now, and as America has done in the past.

The United States used to have the technological edge. It no longer does. While countries like Japan and West Germany coordinate ressearch and development between the public and private sectors and then share the information with their businesses, American policy is to bottle it up and fail to coordinate its use.

The Federal Technology Transfer Act is a major step toward strategic coordination of our research and development that will improve our industries' performance in world markets. I urge my colleagues to support this bill.

Mr. ROCKEFELLER. Mr. President, I am pleased to join my colleagues from the Commerce Committee in urging final passage of H.R. 3773, the Federal Technology Transfer Act.

This measure is about technological innovation, and about the process of turning inventions into marketable products and services. It recognizes that Federal laboratories represent a promising resource and provides a way to strengthen the links between government scientists and researchers in the private sector.

The Stevenson-Wydler Technology Innovation Act of 1980, which this bill amends, attempted to focus national attention on the issue of technology transfer. Regrettably, it was never fully implemented. But despite the administration's opposition to the act's central feature, a network of government-industry research centers, progress was made within individual agencies to encourage commercial applications of technology developed under their auspices.

Building on this fledgling effort, H.R. 3773 would facilitate cooperative research projects by Federal laboratories and private companies. The Government invests approximately $18 billion on research by Federal laboratories, and much of this work leads to patentable inventions. Yet only a small fraction of these Federal patents are licensed by private industry for commercial use.

In contrast, other countries—particularly Japan—are blazing the trail in the area of technology transfer. They encourage cooperative government-industry research efforts, and actively look for ways to translate the results of promising lines of research into commercially viable products. Japan has been exceptionally adept at identifying technology with commercial potential. And the inventions with commercial promise—the raw material of this process—often comes from us.

This country should be concerned about the implications of a one-way flow of technological information. The current imbalance in the international flow of knowledge is a real threat to our competitive position in a wide range of industries. America's comparative advantage has always been superior technology—our ability to innovate and invent. But we are no longer self-sufficient in technology: without access to technology developed elsewhere, major advances will pass us by.

I am very pleased that the final version of H.R. 3773 incorporates a Senate amendment, which I jointly sponsored with the distinguished majority leader, to improve U.S. access to technology developed with the help of foreign governments. Under the bill, foreign applicants will have opportunities to acquire technology developed in our laboratories—and we think our companies and researchers should get equivalent treatment by other countries in return.

Federal laboratory directors are empowered by this legislation to approve cooperative R&D arrangements and licensing agreements with private industry. Where applications to enter into these agreements come from foreign parties, our provision would permit the laboratory directors to take into account whether or not the countries involved permit U.S. agencies, companies, or other parties to participate in similar arrangements. It would apply to U.S. subsidiaries of foreign companies, as well as to other persons and organizations subject to the control of a foreign government.

We hope, by giving this discretion to our Federal laboratories, to open doors for our corporations and researchers to the work in foreign government-supported laboratories. By making reciprocal access a consideration, we should increase our leverage with foreign research organizations—and gain access to much valuable technical information. If foreign scientists, engineers, and other researchers can have relatively unrestricted access to path-breaking research at NIH or NASA, it's only right to expect comparable opportunities for our researchers in exchange.

In closing, I consider this legislation an important element of what should be a comprehensive, determined effort to improve the competitiveness of our industries. It will encourage industry to draw on the impressive technological resources and expertise of our Federal laboratories. It will strengthen our national investment in R&D—and help this country gain access to pioneering research and technology developed elsewhere. I'm proud to have worked on this measure and hope it will encourage us to address other aspects of our competitiveness problems with the same imagination and vigor.

Mr. STEVENS. Mr. President, I ask the Senate to adopt the conference report.

The PRESIDING OFFICER. The question is on agreeing to the conference report.

The conference report was agreed to.

Mr. STEVENS. I move to reconsider the vote by which the conference report was agreed to.

Mr. BYRD. I move to lay that motion on the table.

The motion to lay on the table was agreed to.