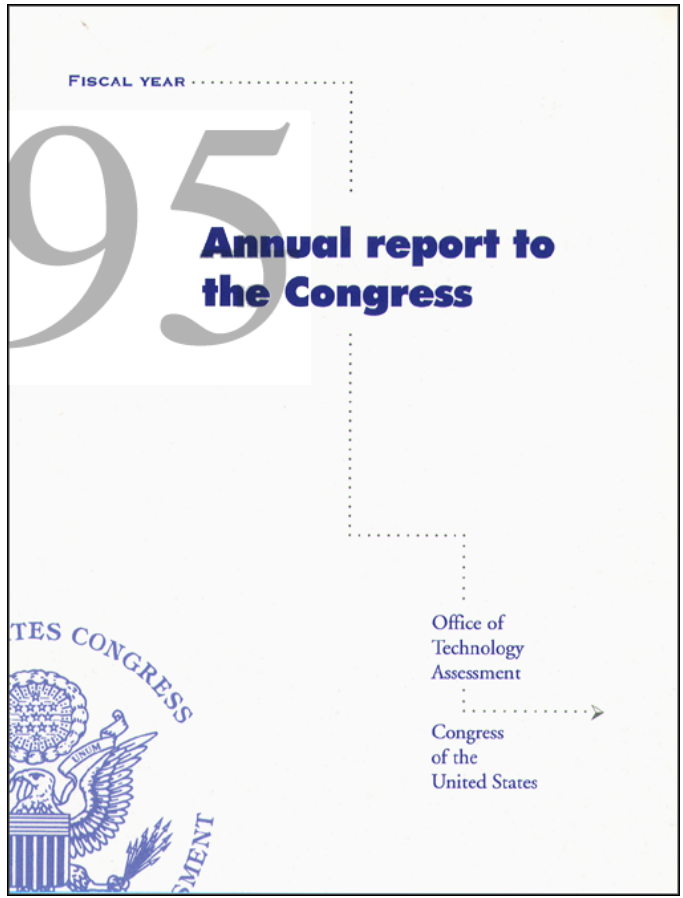
Annual Report to the Congress:
Fiscal Year 1995

March 1996





d e d i c a t i o n

to the Technology Assessment Board

"The Office of Technology Assessment shall consist of a Technology Assessment Board (hereinafter referred to as the 'Board') which shall formulate and promulgate the policies of the Office,....." (P.L. 92-484 § 3b). This Board, appointed by the leadership of the House and Senate, and consisting of six Senators and six Representatives equally divided by party, has been a unique and vital element of OTA since 1972, the year the Office was established and a Board first appointed. The Board's first meeting on April 10, 1973, preceded the receipt of funding for OTA in November 1973 and the beginning of operations in January 1974. Traditionally, OTA Annual Reports have not contained a separate section exclusively devoted to the Board. OTA's last Annual Report, however, would not be complete without recognition of this group of men and women who formed the continuing, integral core of the Office.

[▲]Certain congressional agencies may fall under the jurisdiction of one or another Committee or Joint Committee of Congress; but no agency except OTA has enjoyed the kind of equally bipartisan, close supervision, oversight, guidance and support given by the Board. The management and staff of OTA came to place great value and trust in the work of the Board and pride in the dedication of the Board and willingness of its members to attend meetings and spend time on the affairs of the Office. This was not a figurehead or rubber stamp group, nor were they, as they proved in the last year, fair-weather friends.

[▲]At the first meeting on April 10, 1973, the Board consisted of Senators Edward Kennedy, Ernest Hollings, Hubert Humphrey, Clifford Case, Peter Dominick, and Richard Schweicker and Representatives John Davis, Morris Udall, Charles Mosher, Charles Gubser, Olin Teague and Marvin Esch. Other Members of Congress who served on the Board, some such as Senator Ted Stevens for close to twenty years, were Senators Howard Cannon, Dave Durenberger, Charles Mathias, Jr., and Adlai Stevenson and Representatives Cooper Evans, James Harvey, Marjorie Holt, Joan Horn, Mike McCormick, Clarence Miller, Don Sundquist,

Larry Winn, and John Wydler. OTA's last Board meeting was held on October 13, 1995, at which time the Board consisted of two original members, Senators Kennedy and Hollings, and Senators Orrin Hatch, Charles Grassley and Claiborne Pell and Representatives Amo Houghton, Mike Oxley, George Brown, Jr., John Dingell and Jim McDermott. The members of OTA's Board were distinguished and thoughtful legislators, often Committee Chairmen or Ranking Minorities. They sought to join the Board and, with few exceptions, enjoyed and continued their service as long as they remained in office. They functioned in an exceptionally constructive and cordial spirit of bipartisanship toward the improvement of OTA and the provision of quality information and analysis to the Congress.

[▲]Domestic and international observers of technology assessment and the U.S. political scene have asked about the Board's role during this last year in pressing the case for OTA as a continuing intellectual resource to the Congress and the Nation. Without exception Board members spoke out publically at Appropriations Committee hearings, to the news media and on the floor of the House and Senate and privately in offices, hallways, conferences and caucuses to other Members of Congress. Representative Houghton and Senators Hollings, Hatch, and Kennedy introduced, with Representative Vic Fazio and Senator Ted Stevens, and others, amendments to fund OTA in the House and Senate. Led by Chairman Amo Houghton, the Board, Republicans and Democrats alike, communicated a clear and sincere commitment to the words and concepts of OTA's enabling statute, P.L. 92-484, and followed up through the final Conference Committee decision, by word and deed earning the lasting gratitude and respect of OTA staff.

s t a t e m e n t

of the TAB chairman—Arno Houghton

CONGRESSIONAL RECORD. EXTENSION OF REMARKS

[*In Memoriam: The Office of Technology Assessment, 1972-95. Hon. Arno Houghton of New York, in the House of Representatives, September 28, 1995*]

Mr. HOUGHTON. Mr. Speaker, the Congressional Office of Technology Assessment [OTA], which served the Congress with such great distinction for more than 20 years, will close its doors on September 29, 1995. On behalf of all the Members of this body, I would like to express my deep appreciation to the more than 200 dedicated and talented individuals at OTA who have served us so selflessly. And I want to share with you a brief summary of their accomplishments.

As you know, OTA's job was to provide the Congress with an objective, thorough analysis of many of the critical technical issues of the day. And that it did, examining cutting edge science in medicine, telecommunications, agriculture, materials, transportation, defense, indeed in every discipline and sector important to the United States. The agency appraised the costs and benefits of diverse technological systems: The computerization plans of Federal agencies; satellite and space systems; methods for managing natural resources; systems for disposing of wastes. The list is endless. But to mention just a few more:

OTA evaluated the environmental impacts of technology and estimated the economic and social impacts of rapid technological change. The agency offered sound principles for coping with, reaping the benefits of, that technological change—in industry, in the Federal Government, in the workplace, and in our schools. The agency took on controversial subjects, examining them objectively and comprehensively for our benefit. It helped us to better understand complex technical issues by tailoring reports for legislative users. It provided us with early warnings on technology's impacts and it enabled us to better oversee the science and technology programs within the Federal establishment.

While pulling issues down to practical grounds, OTA has usually erred on the optimistic side. For example, OTA regularly spelled out its belief in the power of technology to improve our lives and help solve the Nation's problems. It worked through a basic understanding of how technology works, how institutions need to change to accommodate new technology, how resistant to change such institutions can be when the conditions are wrong, and how swiftly they can adapt when the conditions are right. OTA helped us discover the conditions for change.

[*A Scope Wide and Deep*]

Once OTA was well underway, it had 30-60 projects in progress, published up to 55 reports, and started approximately 20 new projects each year. Its work ran the gamut of subject matter, with approaches tailored for each topic and congressional request. For example:

[▲]In 1975, one OTA program began a comprehensive policy analysis of the Nation's energy future, which it provided incrementally throughout the energy crisis.

[▲]Between 1975 and 1980, another OTA group set the stage for today's booming industry in the technology assessment of health care by demonstrating the inadequacy of information on which decisions about technology were made; laying out the strengths and weaknesses of methods to evaluate technology; and crystallizing the process by which economic tradeoffs could be incorporated in decisions.

[▲]In 1979, OTA expanded its work in agriculture to include all renewable resources and laid the foundation for others' efforts on sustainable development and, later, ecosystem management.

[▲]One OTA group examined each key mode of transportation in turn, focusing especially on urban transportation; better and less expensive ways to move goods; and technologies which used less petroleum. Another OTA program tracked materials through their total life-cycle—from

exploration and extraction through production to use, reuse, and eventual disposal. A third investigated policies related to the private use of Federal public lands and other resources, addressing questions of public equity, the responsibility of industry, and the long-term protection of the environment.

In sum, OTA brought new, old important science into the center of many congressional discussions. At times, OTA took part in high-profile debates on major pieces of legislation such as the 1980 Energy Security Act; Superfund; the Clean Air Act; and the Foreign Assistance Act. Also, the agency contributed to specific technical issues that puzzled nontechnical congressional staff—from risk reform to long-term African development; from acid rain to dismantling nuclear weapons; from the Strategic Defense Initiative to police body armor. One study on global climate change helped Congress evaluate more than 131 pieces of legislation. At its busiest, OTA's testimony for various committees averaged more than once a week.

The executive branch and State governments were not outside the OTA reach. OTA published the landmark work on computers in schools. This eventually led to support for teachers as the way to make the best investment in technology—a key policy change in education. OTA's repeated work on the farm bill prompted important changes in the U.S. Department of Agriculture. And OTA's comprehensive series of analyses on nuclear waste management set out issues of technology and policy for both industry and the military.

[*Careful Analysis, Shared With the World*]

In the course of every study, OTA accumulated vast amounts of raw information. By a project's completion, OTA had created a report with 'value-added.' OTA staff excelled at identifying the principal strands of analysis, weighing the evidence of each, and synthesizing essential pieces. The creed of OTA was to come

as close as possible to objective analysis. It was a point of pride when reports were cited both by an issue's defenders and its detractors, as happened most recently in debates regarding the North American Free Trade Agreement and Oregon's Medicaid program.

The public and private sectors have recently discovered the benefits of organizing work around functional teams. OTA started with this model. It was used in every project. Team members came from different disciplines and backgrounds, with different experiences and perspectives, yet they always seemed to share a commitment to their product and not incidently to the American people.

When work took OTA into new subject areas, staff broke ground for new intellectual pursuits. This was true in risk policy. And it was true when OTA developed the analytical methods to identify priorities for agricultural conservation. During OTA's lifetime, 'international interdependence' changed from slogan to reality. OTA was ahead of the curve, conducting international case studies and exploring previously ignored aspects of international security. In fact, between 1985 and 1990, OTA's studies of the impacts of technology on the economy, environment, and security of the U.S.S.R. and Eastern Europe made clear that the demise of centrally planned economies was inevitable.

As a result of all this, OTA gradually became recognized worldwide as the top institution of its kind. Representatives from about one-third of the world's nations visited OTA one or more times to learn how OTA worked; how it became so valuable to Congress and the American people; and how these foreign nations might develop their own "OTA's." Austria, Denmark, the European Community, France, Germany, Great Britain, the Netherlands, and Sweden have copied or adapted the OTA style. Similar organizations are being discussed or formed in Hungary, Japan, Mexico, the People's Republic of China, Russia, Switzerland, and Taiwan.

The above is simply the most visible aspect of OTA's international impact. Visitors from other countries stopped by OTA almost every week to discuss specific technologies or technology-related issues. Several OTA staff spoke frequently about OTA in other countries. A number accepted temporary details to academic or government positions overseas. And still others traveled abroad to teach short courses on technology assessment.

[*The Written Word*]

In its 24 years, OTA published nearly 750 full assessments, background papers, technical memoranda, case studies, and workshop proceedings. OTA reports were recorded as being "remarkably useful," "thorough," "comprehensive," "rigorous." At their best, OTA reports were among the most cited references on their subjects. "Landmarks," they were called, "definitive," and the "best available primers." From 1992 to 1994, twelve assessments won the National Association for Government Communicator's prestigious Blue Pencil Award, successfully competing against as many as 850 other publications in a single year. In the same 3 years, 12 additional reports were named among the 60 Notable Government Documents slected annually by the American Library Association's Government Documents Round Table—representing the best Federal, State, and local government documents from around the world.

In typical comments, the Journal of Foreign Affairs claimed that, "The Office of Technology Assessment does some of the best writing on security-related technical issues in the United States." A former Deputy U.S. Trade Representative called OTA's 1992 report on trade and the environment, "the Bible." A Senator described OTA's work on the civilian impacts of defense downsizing as "* * * a superb study and the standard by which all similar efforts will be judged." And the head of one state's plant protection agency described OTA's study of

non-indigenous species as " * * * a benchmark which will be the most heavily referenced document for years to come."

OTA's reports were often bestsellers at the Government Printing Office and the National Technical Information Service: GPO sold 48,000 OTA reports in 1980 alone. Commercial publishers reprinted at least 65 and translated two reports all or in part. The Superintendent of Documents selected 27 OTA reports to display in the People's Republic of China in 1981. And OTA itself reissued reports that had unusual staying power. For example, OTA's 1975 report on tanker safety and the prevention of oil spills was reissued in 1990 after the Exxon Valdez accident. Likewise, OTA combined the summaries of two particularly popular reports—on tropical forests and biological diversity—and reprinted them in 1992.

[*The People Behind the Projects*]

OTA staff represented every major field of science and technology, ranging from board-certified internists to Ph.D. physicists. OTA staff were sought out to serve their respective professional associations. A number were elected to offices or boards—the International Society for Technology Assessment, the International Association for Impact Assessment, the Association for Women in Development, the Ecological Society of America, etc. Two staff formed the Risk Assessment and Policy Association and others went on to found their own companies.

Above all else, OTA staff were teachers. As a result of their efforts, hundreds of thousands of people are better informed not only about science and technology but also about the structure and function of Congress. OTA served 30-60 congressional committees and subcommittees each year. Thirty-one Senators and Representatives had the privilege to serve on OTA's Technology Assessment Board and we became among the Congress' most knowledgeable members on issues of science and technology.

Each year, at least several hundred advisory panelists and workshop participants also took part in OTA's work. Some years, OTA tapped as many as 1,500 leaders from academia, non-governmental groups, State and local governments, and industry. OTA's advisors valued the experience and said it made them more fit for decisionmaking in their own fields. Some were experts; some were stakeholders. Still others were members of the larger public. As early as 1975, OTA incorporated public participation and stakeholder involvement into a major study of offshore energy development. Nearly 15,000 people were involved. Later approximately 800 African farmers and herders were included in an evaluation of the United States-funded African Development Foundation.

In addition, OTA provided 71 scientists and engineers with a challenging and memorable year on Capitol Hill as Morris K. Udall Congressional Fellows or congressional fellows in health policy. Many of OTA's younger employees gained a taste for research—and for public service—at OTA and went on to graduate school to become the next generation of business leaders, scientists, engineers, and policy analysts.

OTA's record depended upon remarkable support staff as much as it did on the agency's analytical staff. Their work was the standard against which other Government agencies were measured—and often found lacking. People came from around the world to attend OTA meetings—and often commented that OTA's workshops were the most well supported, best organized, and most productive they had ever attended. Contractors were gratified by the ease with which their travel arrangements and invoices were handled. OTA processed hundreds of security clearances efficiently and without incident—without which OTA could not have done its work in national defense. Reports sped through OTA's publishing process

and grew steadily more attractive through the years. The staff of OTA's Information Center could find even the most obscure research material—and provided a friendly agencywide gathering place. The Information Center, the technical support office, and the agency's electronic dissemination program kept OTA at the cutting edge of technology for research and for public access to the agency's work.

OTA was a small agency. It was a generous place. For some, colleagues became like second families and these relationships extended to committee and personal staffs. Friendship, joy, and grief seemed to be shared without regard to job description. Many at OTA value this legacy as much as any other. But of course, OTA was not perfect. At times, its greatest strengths—flexibility, tolerance, the preponderance of technical skills—became its biggest weaknesses. One outsider looked at OTA's work and commented, 'You must have just about the most interesting job there is.' I know that many at OTA, for much of their time, felt exactly that way.

Although OTA closes on September 29, 1995, the Congress will continue to benefit from its work. Stark evidence of the dedication of OTA staff is the fact that they continued working to the end. More than 30 reports will be delivered to requesting committees even after the doors are closed.

OTA soon will be a memory, and we will discover what is lost. But we can salvage something. Those of us who have used OTA reports know that most of them have long shelf lives. The really important issues—the issues OTA worked on—do not get solved and go away in one Congress. In January 1996, all of OTA's reports will be issued on CD-ROM—OTA's final legacy. We should be proud of it.

s t a t e m e n t

of the TAB vice chairman—Edward M. Kennedy

EDWARD M. KENNEDY
MASSACHUSETTS

United States Senate
WASHINGTON, DC 20510-2101

October 13, 1995

The Honorable Amo Houghton
Chair, Technology Assessment Board
Congress of the United States
Washington, D.C. 20515

Dear Amo and Friends of OTA:

I wish I could be with all of you today for the final meeting of the Technology Assessment Board.

As one of the sponsors of the bipartisan legislation that created OTA 23 years ago, I watched with pride as this unique agency became a world-renowned source of information and analysis on technology issues. Standing at the intersection of science and government, OTA played an extremely valuable role in helping Congress to understand the significance of scientific and technological advances and harness them for the benefit of the American people. OTA helped us evaluate and respond effectively to challenges in fields ranging from agriculture to law enforcement, from adolescent health to nuclear disarmament.

In my view, Congress made a serious mistake in choosing to terminate OTA. It is ironic that OTA is being eliminated to save money. The fact is, OTA has saved money for the federal government many times over, by guiding us away from unwise expenditures and toward cost-effective ones.

OTA was a bargain for the America people. Its large impact on the legislative process was far out of proportion to the relatively small sums allotted to the agency each year.

You recognized these facts, Amo, and fought hard to save OTA in the last few months. Fritz, Ted, Orrin, Chuck, Claiborne and I did our best in the

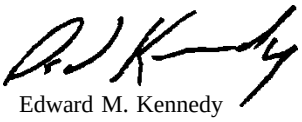
Senate to match your efforts in the House. We came up a few votes short, but it wasn't for lack of trying. We won hands down on the merits, but we lost narrowly on the politics, and I regret that very much.

Roger Herdman has been an outstanding captain of this ship. He has been a gifted administrator and a good friend to all of us. That we came so close to saving OTA was a measure of how far Roger and OTA's superb staff brought us.

In his Inaugural Address, President Kennedy challenged the American people to "invoke the wonders of science, instead of its terrors...Together," he said, "let us explore the stars, conquer the deserts, eradicate disease, and tap the ocean depths."

OTA has helped us meet those challenges, and more. I'm proud to have worked with all of you, and prouder than ever of OTA.

Sincerely,



Edward M. Kennedy

Message to the OTA Staff

October 13, 1995

"I do not think we can impose limits on research. Through hundreds of thousands of years, man's intellectual curiosity has been essential to all the gains we have made. Although in recent times we have progressed from chance and hit-or-miss methods to consciously directly research, we still cannot know in advance what the results may be. It would be regressive and dangerous to trammel the free search for new forms of truth."

Margaret Mead
American Anthropologist

Politicians are famously ill equipped to make scientific decisions. That's precisely why the Office of Technology Assessment was established.

History is replete with examples of shortsighted political decisions in the research field. Everyone knows the vital role King Ferdinand and Queen Isabella of Spain played in financing the crucial voyages of Christopher Columbus. Few can identify the people in the other countries who refused to finance Columbus' research. They are deservedly anonymous.

Yet the people who turned Columbus down probably were making sound political decisions for their time. It was only later those decisions proved disastrous.

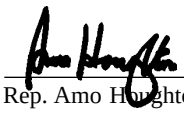
As avid supporters of the Office of Technology Assessment, we fear a similar mistake has been made by the current Congress.

Politics is about today's vote. Research is about the future. The ability of Congress to harness science for the good of the American people will be diminished in your absence.

It would be a great favor to us if you would please accept our deep appreciation for your years of extraordinary service in behalf of this country.



Sen. Edward Kennedy
Senate Co-Chair
Technology Assessment Board



Rep. Amo Houghton
House Co-Chair
Technology Assessment Board

of TAB member—George E. Brown, Jr.

CONGRESSIONAL RECORD. EXTENSION OF REMARKS

[*Office of Technology Assessment: Defense Against the Dumb. Hon. George E. Brown, Jr. of California, in the House of Representatives, September 29, 1995*]

Mr. BROWN of California. Mr. Speaker, today marks the last day of existence for the Congressional Office of Technology Assessment. For 23 years OTA has served the American public by giving invaluable guidance and analysis on the dizzying array of technological advances we face in modern society. In its ignorance, Congress has voted to end this institution. It will be missed.

In recent months, I have seen a lot of mindless things being done in the American public's name. First we saw science-based regulatory decisionmaking being used as a slogan for the process of gutting Federal health and safety regulations. Then we have witnessed the slashing of research budgets designed to provide the science upon which these decisions were to be based. Across government, research and development budgets have been cut in order to pay for tax cuts that we don't need.

This mindless approach to government substitutes public relations gimmicks for policy, trying to palm off as reforms simplistic proposals to sell House office buildings, dissolve cabinet agencies, and end daily ice deliveries to House offices. The unfortunate irony of this process is that the victim of this irrationality has been an agency set up to make the legislative process more rational: OTA.

I was serving in Congress in the mid-1960's when we first discussed the need for OTA. In what seems like the dark ages, before e-mail, genetic engineering, flip phones, and dozens of other technologies that have changed our lives, we were concerned that the rush of technological advance would overwhelm our ability to make rational political judgments.

We looked over the various congressional support agencies and did not find the kind of scientific and technological expertise needed to address the challenge. So, we created OTA, an agency that has served Congress well in the intervening years.

In recent months we have heard many criticisms of OTA, as those intent upon issuing press releases on the downsizing of government focused upon that agency's elimination. Some said that OTA studies took too long. But the OTA was established to provide comprehensive, balanced analysis of complex questions. It looked at the technology, at its social and economic impacts, and then made a range of recommendations for congressional action. That process takes a long time. For those with short attention spans, those who fear factual information because their minds are already made up, and those who never get past the executive summary of "shake and bake" boiler-plate policy reviews, OTA probably takes too long. For those of us who take our elective responsibilities seriously, careful analysis is a necessity.

Some critics have maintained that other congressional support agencies could accomplish the same task. That was not the case in 1972 and is even less true today. None of the support agencies have the expertise that OTA had on science and technology issues. None of these agencies employ the use of a balanced panel of outside experts and stakeholders to review the issue under examination. None of these agencies have a bipartisan, bicameral governing body to insure neutrality and independence. None of these agencies have a science advisory panel composed of world-class science and technology leaders. Each of these agencies have expertise and produce competent studies, but none can produce the high-quality in-depth studies for which OTA has become internationally known.

And I disagree with those who say that the executive branch, or the National Academy of Sciences, or some department of science

could provide this information. These are not congressional agencies. They cannot tailor information to the unique needs of the legislative branch. And, as we determined when we first looked at this issue in the 1960's, we did not want the legislature held captive to information produced by the executive branch, without regard to which party is in the White House.

Mr. Speaker, as someone who was around at the birth of this agency, it saddens me to be present at its death. It saddens me to see dedicated public servants turned out of jobs that they performed with outstanding competence, even up until the final hours today. Each of us owes a debt of gratitude to those people and each of us has a responsibility to help them make the transition to another position. For those of my colleagues who are unaware, these people cannot use the Ramspeck provisions to move into civil service jobs. In fact they do not even have active civil service status. We have treated these people poorly and they deserve much better.

Let me conclude with an observation made by a former OTA employee who stated OTA's task as being to create for Congress a "defense against the dumb." It is shameful that in the end, OTA was defenseless against a very dumb decision by Congress.

s t a t e m e n t

of the TAAC chairman—James C. Hunt

As a member of the Technology Assessment Advisory Council for the past eight years and as Chair of the Council this last year, I had the opportunity to learn about and review each of OTA's research and assessment programs. In addition, I served on OTA's project Advisory Panels, chairing one of them, and worked with OTA staff on two reports.

To me, OTA's well-hidden, most valuable resource was the diverse, experienced and motivated professional staff who had an amazing capacity, despite limited resources, to attract the best minds, expert in any given field, and to gain their enthusiastic participation in developing, for the Congress, reports that are broadly desired by a multitude of other agencies, institutions, and individuals.

Indeed, the broadly based relationship among OTA leadership and professional staff, industry and academic institutions and their people impressed on me the quality value that OTA's information and analysis provided the Congress. By working side-by-side with Advisory Panel Members, I grew to respect and appreciate the expertise and commitment of the OTA staff and their dedication to nonpartisan, accurate and evenhanded study and analysis. My fellow members of the Council and I did all that we could to make the case for OTA during the 1995 debate. It was gratifying to see that those very people most familiar with OTA's contributions not only recognized the importance of OTA, but also allocated time from very busy schedules to make the case for OTA's needed continued existence. I share the sense of loss and regret in the outcome. The Congress and the public will miss an impartial, omnipresent arbiter of technology applications.

My eight year association with the people of OTA provided a wonderfully instructive, enjoyable life experience—an experience that means a lot to me,

one that I will always treasure. OTA made a difference for thoughtful legislative policy that will be difficult to replace. Indeed, it seems to me that the challenge to the Congressional leadership is to develop an even better approach and a more superior mechanism for technology assessment. For their steady hand on the tiller at OTA, the Congress and the public at large owe Roger Herdman and Jack Gibbons a debt of gratitude.

s t a t e m e n t

of the director—Roger C. Herdman

Early in fiscal year 1995 Congress signaled that the overwhelming priority to achieve a balanced budget would require such budgetary restrictions that funds could no longer be appropriated to continue OTA. This communication in the first quarter of the year influenced the agenda for FY 1995 and initiated the events of the last three quarters of the year. During that time:

[▲]OTA and OTA's Board made as persuasively as possible the case that OTA's contributions to Congress were valuable and not obtainable elsewhere. Comprehensive, non-partisan, unbiased, accurate information and analysis on complex science and technology issues are important to informed policy making.

[▲]Expressions of support for OTA's funding came from academia, industry, public interest groups, distinguished citizens and scientific societies. Particularly gratifying and appreciated was written support from the National Academy of Sciences, National Academy of Engineering and Institute of Medicine, since these institutions by their quality, scope of work and expertise have been scientific colleagues to OTA and now should be the natural places for Congress to turn for help in filling the analysis and information gaps left by OTA's abolishment.

[▲]OTA's Board held press conferences, testified at hearings, spoke on the floor of the House and Senate and in conference, introduced amendments to fund OTA in both houses of Congress and voted for OTA at every opportunity.

[▲]A final decision on OTA funding was not reached until conference committee, at which point it was decided to give OTA a closeout budget which allowed for 60 calendar days severance to staff and a small team to ensure an orderly closeout of the agency and proper conservation and dissemination of OTA work and other assets.

[▲]Few new requests were received and then only for short term projects that OTA could (and did) deliver before the end of the fiscal year.

[▲]OTA staff worked to the final day of FY 1995 and in the process prepared a record 61 reports (full Assessments or Background Papers), either finishing or at least issuing a partial report on almost all requests pending.

In early FY 1996 the closeout staff distributed all Reports, prepared electronic versions for the Internet of recent OTA work and a set of CD-ROMs of all of OTA's work—755 Reports. The completion of OTA's responsibilities and the conservation and dissemination of the agency's work were made possible only by the thoughtful provision of the closeout budget and severance initiated by the Legislative Branch Subcommittee of the Senate Appropriations Committee. The required archiving to the National Archives, financial accounting, and the orderly distribution of OTA's physical assets to other congressional agencies were also enabled by this appropriation.

A complete set of OTA reports was made available for the University of Maryland (College Park), George Mason University in Fairfax, VA., the University of California at Santa Barbara, and the Library, Naval Postgraduate School, Monterey, California. Sets of recent reports (1991-1995) were made available to a number of academic and technology assessment centers: Princeton University, Virginia Polytechnic Institute and State University, Cornell University, Stanford University, University of Oklahoma, Washington University, St. Louis, MO., NAS/NRC, George Washington University, Harvard, Rensselaer Polytechnic Institute, and Carnegie Mellon University. Internet websites for 1994 and 1995 electronic reports were arranged at the Government Printing Office (http://www.access.gpo.gov/ota), the National Academy of Sciences (http://www.nas.edu), and the Woodrow Wilson School of Public and International Affairs at Princeton University (http://www.wws.princton.edu). OTA's archival CD-ROMs are available from the Government Printing Office.

OTA's FY 1995 productivity was at record heights as staff met their responsibility to complete millions of dollars of work in progress and provided almost without exception a report on every pending congressional request—some by the regular process, sixteen that were distributed on return from the Government Printing Office after the close of FY 1995, and some by in-house desktop publishing or photo duplication.

This final body of work covering the spectrum of science and technology issues coming before Congress and the American people completes the legacy of OTA—a legacy of quality and commitment.

"OTA soon will be a memory, and we will discover what is lost. But we can salvage something. Those of us who have used OTA reports know that most of them have long shelf lives. The really important issues—the issues OTA worked on—do not get solved and go away in one Congress. In January 1996, all of OTA's reports will be issued on CD-ROM—OTA's final legacy. We should be proud of it." Amo Houghton, M.C., Congressional Record, September 28, 1995.

of OTA's organization, operations, and abolishment

The beginning of FY95 found management and staff of the Office of Technology Assessment involved in adjusting to and continuing the implementation of a major reorganization. The major structural and personnel actions of that reorganization took place during FY94, but as OTA learned, any major restructuring is an ongoing process of adaptation and adjustment. New policies and procedures designed to complement the reorganization—such as a formal project tracking system and a process of project-long internal peer review (shadow panels and "project kibitzers")—were also being developed and put in place.

In addition, the analytical agenda of the agency was a full and challenging one. Due to the elections of November 1994, OTA staff were beginning the process of ascertaining the research needs of the new Republican chairpersons, and planning the year's research agenda in ways that could accommodate new requests from them. Thus, the activities at the opening of FY95, in early fall of 1994 had a double focus: the conduct of a wide range of important research and the continuing challenge of guiding a newly reorganized agency.

This focus was blurred in December 1994, when the Senate Republican Caucus voted in favor of the elimination of OTA, and shifted entirely in the ensuing months, as further legislative actions moved closer and closer to a formal decision for elimination.

[*Organization*]

The Office of Technology Assessment was established by the Technology Assessment Act of 1972 [86 Stat.797] as a congressional support agency with the mission of helping Congress deal with policy issues affected by the complexities of science and technology, from biotechnology to fusion energy, from telecommunications to space launch capabilities. OTA was designed to operate in a uniquely expert, objective, and nonpartisan fashion.

OTA's staff represented every major field of science and technology. It was organized into two major divisions (down from three in previous years) comprising six research programs (down from nine); these are described in the next section.

Administrative support offices supported the analytical work of OTA. There were offices for budget and finance, personnel, contracts, information services, telecommunications and information systems, building services, and publishing. The Congressional and Public Affairs Office handled much of the agency's congressional liaison and press work, and relations with the Board and the Technology Assessment Advisory Council.

OTA was governed by a 12-member, bipartisan congressional Technology Assessment Board of six Senators and six Representatives, equally divided by party. In addition, a distinguished council of 10 leaders from science and technology, business and industry, and education provided advice as the Technology Assessment Advisory Council.

OTA undertook assessments at the request of any congressional committee Chairman or Ranking Minority Member. The OTA Board could also request work, as could OTA's Director. In practice, most assessments were requested by the Chairman and the Ranking Minority Member of a committee, and a great many were supported by more than one committee. The Technology Assessment Board made the final decision on whether OTA could proceed with an assessment and reviewed all reports prior to their release.

Most of OTA's work concentrated on in-depth assessment that took one to two years to complete. Drawing on past and current work, OTA also met immediate congressional needs with a variety of analytical support such as briefings, testimony, and special reports.

[*Fiscal Year 1995 Activities*]

The key overlay for the agency's activities was a nearly physical sense of uncertainty, a 10 month long environment of clear and immediate uncertainty about the agency's entire future. It was a period of extreme ups and downs, with the "ups" being a sense that the agency would continue to exist in some form but with the loss of a substantial proportion (from 20 to 50 percent) of its resources and, especially, staff. The "downs" were periods when OTA's termination seemed the most likely outcome.

We mention the mood, or climate, of the agency during most of FY95 because the agency's operations took place in that context. Despite the uncertainty of each staff person's future and the decision by the Congress that OTA was not worth saving, or perhaps because of these factors, the agency's productivity reached all time highs. As indicated in the Director's statement, OTA produced and released in some form a total of 61 research Reports and Background Papers plus the usual administrative documents (an Annual Report and catalogs of publications).

The 61 research documents delivered to the requesting Committees and the Congress as a whole comprise several classes of products. Many were finished as originally planned, with scope, format, and timing unchanged. Others, however, were revised—some in depth of analysis, some in scope of topics addressed—and some were unchanged in scope but collapsed in time by working many many extra hours—in order to deliver before OTA's elimination. Some of the projects OTA had underway at the beginning of FY95 had to simply be dropped, or had one or more of multiple planned documents dropped, and these projects are thus not in the 61 completions.

The 61 Reports and Background Papers completed and delivered are listed, along with the requesting and endorsing Members and Committees, at the conclusion of this statement.

[*Abolishment*]

The decision by the Congress to abolish OTA effective September 30, 1995, followed a year of uncertainty and ever changing prospects for survival. The process began in December 1994 with a vote by the Senate Republican Caucus to recommend termination of the agency and gathered momentum with the naming of Senator Mack as Chairman of the Senate Legislative Branch Appropriations Subcommittee. Senator Mack co-authored the Caucus report and had publicly vowed to abolish the agency. Considerable debate followed in both houses of the Congress, beginning with a joint hearing between the House and Senate Legislative Branch Appropriations Subcommittees. The Subcommittees discussed alternative proposals for trimming the $1.3 billion legislative branch budgets.

Although OTA represented less than 1 percent of the legislative branch budget (1/20th the size of the General Accounting Office alone), early in the 104th Congress OTA became a symbol of the Congressional Leadership's ability to reduce the size of government—a function, an agency, and its associated cost within the legislative branch of government. This became the principal argument behind the House and Senate Leadership's decision to debate the future of OTA in the appropriations process rather than through the agency's authorizing and oversight committees, the Senate Rules and House Science Committees. In the House, most questions put to the leadership regarding OTA's fate were referred to Representative Bob Walker, Chairman of the House Science Committee and close colleague of Speaker Gingrich. Chairman Walker, nonetheless, was silent in all open Committee and floor debates regarding OTA's fate although he occasionally made statements to the press praising the quality of OTA's work but expressing concern about synchronization of OTA's work products with the "Congressional rhythm." In the Senate, only Senator Mack seemed openly intent on eliminating OTA with virtually all others professing an open mind on the subject.

With proposed elimination on the table, OTA's supporters in Congress, led by the members of the Technology Assessment Board and many others, argued the case for OTA's unique contributions to the legislative process, including its nonpartisan oversight and management, its outreach-oriented research process (reaching over 5,000 distinguished experts annually), the exceptional quality of its staff and the work they produced (over half of OTA's professional staff held PhDs spanning the science and technology-related disciplines—unique in the legislative branch), and the importance of the function in today's increasingly technology dependent world (OTA's structure is being emulated in governments around the world), especially when few in Congress come from science and technology backgrounds. The science and technology community also registered its support for OTA with strong letters of endorsement from the National Academy of Sciences, The National Academy of Engineering, the Institute of Medicine, The American Association for the Advancement of Science, the Institute of Electrical and Electronics Engineers, the American Physical Society, the Federation of American Scientists, and many others from academia, industry, and overseas.

[HOUSE DEBATE]

The formal process for elimination began in the House Legislative Appropriations Subcommittee. In their testimony the heads of the Legislative support agencies as well as Members of TAB, including Reps. Houghton, Oxley, Brown, Dingell, and McDermott sharply distinguished the roles of these agencies. Chairman Packard, however, delivered an appropriations bill eliminating funding for OTA arguing that the information provided by OTA can be acquired elsewhere. This position did not prevail; Mr. Houghton, Chair-designee of TAB, and Mr. Fazio, ranking minority member of the Legislative Branch subcommittee, and a long time OTA supporter, fashioned a floor amendment (actually two different versions with Mr. Fazio subsequently deferring to Mr. Houghton's version) designed to preserve

the function of OTA and making it a part of the Library of Congress. However, the House Rules Committee would only allow floor debate on amendments that were revenue-neutral compared with the Committee-passed bill, though that bill was below the legislative branch allocation included in the draft House budget resolution. As a result, Mr. Fazio and Mr. Houghton chose, as a placeholder, to propose reducing the Library of Congress appropriation by several percent to provide for OTA since that line item was the only amount increased over the previous year in the Committee-passed bill, vowing to restore the amount reduced in the House-Senate Conference on the bill. Apparently, the LOC feared the restoration of the reduction might not be delivered in the conference since the Librarian of Congress began to counsel members against the Houghton-Fazio amendment.

The floor debate on this amendment was heavily in favor of OTA with only Chairman Packard arguing against the amendment. The amendment prevailed by a wide margin. Floor statements in support of the agency came from both sides of the aisle including Representatives Weldon, Boehlert, Hyde, Houghton, Clinger, Walsh, Morella, Fazio, Brown, Dingell, Kennedy, Engel, Moran, and Skaggs.

EXCERPTS FROM STATEMENTS OF SUPPORTERS ON A PROPOSED AMENDMENT TO RESTORE FUNDING TO OTA DURING THE HOUSE FLOOR DEBATES INCLUDED:

[*Representative Brown*]

At a time when budget cuts are a priority, some have questioned whether Congress needs a support agency whose primary mission is to assess technology and its implications for society. I hope you will answer that question with an emphatic yes because I believe today we need OTA more than ever before. I have been involved with OTA from the very beginning and have watched its development from my vantage point on the OTA Board since 1975. Congress established OTA because there was a great need to have our own independent and objective source of

information on complicated scientific and technological issues. I am convinced that this need is stronger than ever because science and technology permeate so many of the issues that we consider, such as space, energy, environment, and health. When OTA was created, no one knew exactly how it was going to work. There were times during the early years when we were not quite sure it would work at all. I think few of us would have predicted what a vital role OTA would play in the legislative processes over the years, and how valuable its work would be to so many different committees and to Members from both sides of the aisle.

[*Representative Houghton*]

We should not go blind into the 21st century thinking about a whole variety of things, not understanding science. There are only 3 scientists in this body. Most people do not consider the scientific implications here. They are critically important. I have been involved as a businessman, before I came here, in cutting, cutting, cutting all my life. That is the nature of what business does. Never once did we cut the research, because it not only affects the cost but particularly it affects the revenues. If we are going to go into this next century and our major war will be economic rather than military, we must know what our legislative body can do and what other people are going to do in the world around us. Therefore, I plead either to support the Fazio amendment or my particular amendment in terms of preserving an element of scientific understanding without which I think we are going to be in terrible trouble.

[*Representative Fazio*]

I think is important to restore the Office of Technology Assessment to that group of agencies that have shown an outstanding ability to assist this Congress in its workload. There is no question in my mind that this is an organization that, if eliminated, would be seriously missed by this institution and I think by the people who elect us and send us to Washington

to serve every 2 years. Mr. Chairman, this is a very complex world we are part of. Many of us are trained in the social sciences and humanities. We are not physicists, chemists. There are very few of us that have scientific degrees. Yet we as a Congress, in almost every committee of jurisdiction, are assigned a responsibility of very frequently, particularly in the appropriations process, making fundamental judgments about questions relating to science and technology that are beyond our ability to understand without the assistance of people who are expert. What have we done? Instead of going out and hiring a group of people who are standing by to advise us, we have created a small entity with a core staff that works with thousands of people, from the academic world, from the private sector, from national laboratories, from any number of places where scientists are employed in this country, to help us solve the problems that come to us on a regular basis. We have had this agency, which has a $22 million budget, pay for itself hundreds of times over by giving this Congress the kind of advice it needs to prevent mistakes from being made. Some are, anyway. We have not always used OTA to the extent we should. But my suggestion is, rather than eliminate it, let's let the new majority, if they are so inclined, to change it, to reform it, to mold it, to make it more useful. I think this meat ax approach should be rejected.

[*Representative Weldon*]

Mr. Chairman, I want to speak to one issue during the brief time that I have here today, and that is the issue of the elimination of the Office of Technology Assessment. As a senior member of the Committee on Science and as chairman of the Subcommittee on Military Research and Development of the Committee on National Security, it is extremely important that we not take this short-sighted approach to eliminate what amounts to approximately a $22 million item in our legislative branch appropriations bill. The Office of Technology Assessment touches the acts of this Congress in ways

that none of us really are aware of or understand. In the area of defense, the subcommittee that I chair oversees approximately $35 billion of expenditures. That is more than five Cabinet-level agencies. Much of the research that we do is dependent upon the long-term work that has been done by the Office of Technology Assessment. Just last week we marked up the 1996 authorization bill for the military and we plussed up the national missile defense accounts and theater missile defense accounts by $800 million. Much of the documentation and the arguments to justify that plus-up came from reports and studies done by the Office of Technology Assessment; their study on missile proliferation around the world, their work on the development of arms and the need for arms control and the needs of defending the American people. All of that factual investigative work that took in some cases months and years was done by OTA. It would be extremely short-sighted for us to eliminate this agency. And, in fact, we and the taxpayers would be the losers in the end. And there is no other agency that can do that work.

[*Representative Dingell*]

[I]n a time when we are talking about risk assessment and cost-benefit analysis, getting the Congress the best possible information we can get is a very important undertaking. And having OTA to provide that kind of assistance to the Congress is absolutely indispensable. OTA, because of the fine technical work and because of the careful research which it has done on advanced questions involving technology and advanced information systems, has saved the Congress literally hundreds of millions of dollars over the time of its existence. To cut it back at a time when other nations are beginning to recognize the importance of this kind of advice to a legislative body would be a great shame, and would indeed cost us vastly more than any piddling savings that could be made by eliminating that agency. I would urge my colleagues to recognize this is a cost-benefit, efficient, and desirable step in continuing the existence of OTA.

[*Representative Boehlert*]

I rise in strong support of this amendment to preserve the Office of Technology Assessment [OTA] I fail to see precisely what problem the elimination of OTA is supposed to solve. Is the problem that we suffer from a surfeit of clear, objective, analysis on the complex technical issues confronting the Nation? Is the problem that we expect that the questions facing the Congress are likely to become simpler and less related to technology? Is the problem that as individual Members we have more time, energy, and staff to delve into perplexing scientific and technical materials? Obviously, the answer to all these questions is a resounding no. And for that reason, the response to the proposal to eliminate OTA should also be a resounding no. OTA is the Agency that gives Congress half a chance at making sense of the growing welter of complex, technical issues we must consider. Without OTA, we will be ever more at the mercy of special interests, who appear at our doors with their particular take on the issues, their own tailored explanations, their specifically crafted data. Now of course I know why some Members want to eliminate OTA—to save a little money. But as I have said before, the public has asked us to do more with less—not to do more knowing less. There are other items we should examine before limiting our access to the most precious commodity in Washington—reliable information. The writer Kurt Vonnegut once defined the 'information revolution' as the ability of human beings to actually know what they are talking about, if they really want to. OTA has given us the ability to participate in that revolution. It is a revolution we should embrace, not reverse. Support this amendment, and support the ability of Congress to know what it is talking about.

[*Representative Kennedy*]

Since its inception in 1972, OTA has served as the scientific arm of Congress. In the effort to spend the dollars more wisely, it seems to me that OTA is more critical today than ever before. OTA helps Congress determine what

projects should be undertaken, streamlined and made more effective. It is often said that knowledge is power. Having the right information, the right knowledge, will allow us to better be able to make the right decisions. In this case, OTA provides us with the knowledge, gives us the power.

[*Representative Clinger*]

I think it really does not make a whole lot of sense as we move into a more technologically driven era to be taking away the tool that really give us in Congress the opportunity to assess the effectiveness or ineffectiveness of various technologies. I know as the chairman of the Committee on Government Reform and Oversight that we rely, in doing that oversight as to the effectiveness of programs, OTA provides us with invaluable information. So, you know, we seem to be going in the wrong direction when we really are going to have a much more scientifically, technically driven society, to be taking away the resource that enables us to make rational decisions as to what we should be investing in. I think it would be a terrible mistake to do away with OTA entirely.

[*Representative Morella*]

As the chair of the Science Subcommittee on Technology, I can attest to the importance of OTA. It provides in-depth analyses of science and technology issues for Congress on a bipartisan basis. Reports are initiated only after OTA's congressional governing board, consisting of an equal number of Republicans and Democrats, agrees to proceed. OTA is a small agency that is able to do its job effectively because of its access to expertise from across the country, calling on industry, academia, and other experts to obtain free assistance. It has voluntarily reduced its management staff by 40 percent since 1993, and it continues to save Federal dollars by relying on temporary experts on staff. OTA's reports have led to important cost-saving innovations for our agencies as well. OTA's continued existence is critical to our resolution of complicated policy questions through an

objective analysis of difficult issues. Currently, OTA is working on reports examining weapons proliferation, the human genome project, air traffic control, nuclear waste cleanup, and advanced telecommunications networks.

[*Representative Engel*]

Yes, let us cut waste. Let us cut the things that do not work. But let us not throw the baby out with the bath water. Eliminating OTA? Give me a break. That is one of the things that has worked. It is one of the things that has been good.

[*Representative Skaggs*]

So much of the work of this place now goes on really in a second language, the language of science and technology, whether it is space issues or research issues or environmental issues. Without OTA, essentially, to do simultaneous translation of the language that is very inaccessible to most of us who have not been trained in technical fields, we will essentially be engaging in an act of unilateral disarmament on very, very key national issues. Far from being a luxury that we could do without, this is a necessity that we would be foolish to try to do without. The idea that there is play or leeway in the budgets of any of the other support agencies, GAO or CRS, is simply not true. Those budgets are being held static. There is no place else to put these functions. We need to keep them alive and well at the OTA.

[*Representative Hyde*]

It just seems to me in this era of fiber optics and lasers and space stations, we need access to an objective, scholarly source of information that can save us millions and billions. We should not eviscerate everything that makes us a more effective Congress. So, I support the Houghton amendment.

[*Representative Moran*]

The Office of Technology Assessment has done a great job over the years in supplying us with the information we need to make difficult decisions.

[*Representative Walsh*]

Efforts to eliminate funding for this program are a short-sighted move that Congress will regret as the OTA is an invaluable resource in determining the budgetary impact of new scientific developments. The OTA is a bipartisan agency that relies on technical and scientific expertise from a broad cross-section of industry, academia, and other well-respected institutions. The reports that OTA submits to congressional committees are thorough, top-notch documents that provide expert guidance in advising how Congress should adapt to emerging technologies. Furthermore, OTA is an efficient, unbiased organization that has made recommendations which have saved the U.S. Government millions of dollars. For example, the OTA's study of a Social Security Administration plan to purchase computers helped save the Government $368 million. Other OTA recommendations have been influential in public policy decisions. OTA's reports on preventative Medicare services validated the benefits of mammography screening in the elderly. Another study demonstrated how cost prohibitive it would be to institute cholesterol screening in the elderly. The point I am trying to make is that OTA is a proven organization that provides tangible benefits, expertise, and savings to Congress. Efforts to eliminate all of the functions and personnel of the OTA are misguided.

[HOUSE DEBATE: FINAL ACTION]

The leadership, seemingly surprised by the vote supporting OTA, required a second vote this time, according to Members, with instructions from the leadership's whip organization to defeat the amendment. Mr. Houghton's amendment was actually accepted as a substitute amendment for Mr. Fazio's amendment on the first vote so, technically, a second vote was required to insert the amendment, but in virtually all circumstances such a vote would be handled by a routine voice vote since the same language would be the subject of both votes. The effect of the whip action narrowed the gap and near the

end of the time allocated for the vote with passage of the amendment losing by one vote, the speaker pro-tem "gaveled down" the vote on signal, according to Members, from a member of the House whip team. At the time, two Members intending to vote aye were dashing down the aisle wishing to cast their votes. The House erupted in pandemonium; the leadership called for recess until the next day. At that time, the House leaders, commenting that they did not wish to have even a perception that Members might be cut off voting, proposed a de novo vote on the Houghton amendment that, this time, passed by a substantial margin. By the end of House action, members had voted on exactly the same amendment three times within twelve hours. OTA had survived House action with a 25 percent budget cut.

[SENATE DEBATE]

The debate then moved to the Senate Appropriations Committee. The Legislative Branch Subcommittee, chaired by Senator Mack and accompanied by Senator Bennett, heard testimony prior to the final House action on the legislative appropriations bill from Senators Grassley, Hatch, and Kennedy as well as Director Herdman. Sen. Grassley argued that Sen. Mack, in presenting the host of recommendations he co-authored with Senator Domenici included in the Republican Conference Resolution of December 1994, had agreed to revisit the OTA issue on March 1 as he had revisited the issue of elimination of the Joint Economic Committee (JEC). Senator Mack stated that Sen. Grassley had misunderstood and no such discussion was planned and that the JEC case was different from the OTA case since the House Appropriations Committee agreed to preserve the JEC. Senators Hatch and Kennedy made strong presentations for OTA's appropriation and Senators Mack and Bennett commented that there were plenty of reports available on subjects OTA has studied.

Senator Mack presented a Chairman's mark to the full Appropriations Committee that included the closing of OTA. Senators Hollings and Stevens offered an

amendment to preserve OTA with a one percent reduction in the appropriations of the other support agencies, necessary to preserve revenue neutrality of the bill. They repeated the arguments for preserving the agency but the LOC had continued to express concern to members in the Senate, arguing that even a 1 percent reduction of its budget was too much. At the final Appropriations Committee meeting the amendment failed to pass once again, setting the stage for a floor amendment debate. Senator Hollings offered the amendment on the floor, co-sponsored by Senators Hatch, Stevens, Robb, Lieberman, Wellstone, and Kennedy. Forceful support was offered in favor of the amendment by Senators Stevens, Hatch, Grassley, Kennedy, Glenn, Pell, Moynihan, and Murray (and subsequent extension of remarks by Senator Inouye, who was not present for the vote), but the amendment was tabled and Senator Mack's close-out budget mark was approved.

EXCERPTS FROM STATEMENTS OF SUPPORTERS ON A PROPOSED AMENDMENT TO RESTORE FUNDING TO OTA DURING THE SENATE FLOOR DEBATES INCLUDED:

[*Senator Stevens*]

When it comes down to it, we have used technology in this country to stay ahead militarily, to stay ahead economically, to meet the needs of our people, and yet here we are about ready to do away with the one entity in the Congress that tries to collate and analyze and deliver to Members of Congress credible, timely reports on the development of technology. I believe, more than most people realize, that we are changing the course of history in this Congress, but this is not one of the hallmarks of that change. This entity [OTA] ought to be out in the forefront of that change, and it will not be unless it is properly funded and maintained.

[*Senator Hollings*]

Those who are frustrated and say, 'If I cannot cut this, where can I cut?' I cannot understand those who are committed to ignorance. We are trying to find out. We are trying to learn. We, who have been dealing with the Office of Technology Assessment, study very closely and look at their particular commitments. We just do not take anything and everything. In fact, all of the requests made are bipartisan. They come from the chairmen and the ranking members of the committees themselves. We get way more requests than we respond to and cannot take on each and every question that would come. So it comes with a real need from the Congress itself. OTA has responded. It has done a professional job. There is no criticism in this debate about the quality of work. I am not going to try to overwhelm you and bring all the studies and everything else. But we can get into a few of them. I am pleased—I have checked this amendment through with our distinguished ranking member, the Senator from Washington, and I will be glad to adjust it. Do not tell me that we can give everything to GAO; we know GAO can do it. That is not true. I worked closely for years as chairman of the Legislative Appropriations Subcommittee, working with Elmer Staats and everything else. What we had to do was cut out all the term papers that were being made for high school graduates and everything over there. They will take on anything to keep the work going. Let us not do that. Let us keep the Office of Technology Assessment at an economical price and continue it and not abolish it in the political urge to get rid of something here.

[*Senator Grassley*]

By statute, OTA must secure unbiased information regarding the impact of technological application. OTA is one of the few truly neutral sources of

information for the Congress. In a very real sense, OTA is our source of objective counsel when it comes to science and technology and its interaction with public policy decision making. There are plenty of places for information in this town, but so many of these sources of information come from the private sector—and there is nothing wrong with the private sector; there is nothing wrong with organizations protecting their own interests, even if it is in the area of science and technology. But if we do not have an unbiased source of information, then we have to rely on organizations with a stake in keeping alive programs that benefit their interests.

[*Senator Kennedy*]

The Office of Technology Assessment has performed the task we assigned to it superbly. It continues to serve an indispensable role. It should bear its fair share of the current budget crisis—but it should not be abolished.

[*Senator Hatch*]

I do not think we should make the mistake of cutting OTA yet. I am the first to admit that we have to make cutbacks here. I think OTA has to suffer its fair share. So I am not arguing for 100 percent of OTA's budget. I wish we could because I think it is working over the long run, because this is the one arm of Congress that does give us, to the best of their ability, unbiased, scientific and technical expertise that we could not otherwise get where most everybody has confidence in what they do.

[*Senator Pell*]

I am in support of the effort to preserve the Congressional Office of Technology Assessment. The OTA, on whose board I currently sit, has been of profound and indispensable use to the Congress in the carrying out of its function of an independent source of complex, unbiased analysis

of the technology issues facing our country today. I firmly believe that it would be short-sighted and unwise for us to eliminate entirely this agency, even as we strive to effectuate budget savings with the Legislative Branch.

[*Senator Murray*]

OTA is a unique and valuable asset of the Congress. For many years it was also unique to the United States; but within the past few years, it has been used as a model by many democratic nations for establishing their own technology assessment organizations.

[*Senator Glenn*]

[T]he OTA has proved itself time and again in hundreds of studies across the board spectrum of technology assessment. Throughout its tenure, it has become recognized around the world of its cogent, professional, and unbiased work. It would be foolhardy to shelve that expertise now in a blind effort to simply slash budgets.

[*Senator Moynihan*]

I am sure most of us will also agree that the Office of Technology Assessment has an important role. It has been here a quarter century. It was established for a role and it ought to continue.

[CONFERENCE COMMITTEE ACTION]

OTA's last chance for survival was in the House-Senate conference committee to resolve the differences between the House and Senate versions of the Legislative Appropriations bill. Chairman Packard offered to accede to the Senate position for elimination but Representative Fazio introduced an amendment to fund OTA without a reduction in the LOC appropriation. The Committee registered a tie vote; thus the amendment failed to be approved.

The Senate mark for closing down OTA was thus agreed to in conference and any possibility of additional attempts would be frustrated by the overall federal budget impasse with the White House; OTA quietly began preparations for suspending operations, transferring assets to other support agencies as instructed in the legislation, and out-placement of OTA staff to other careers. It should be noted that the Senate mark included funds for 60-day severance for all OTA employees and arrangements for a closeout staff of seventeen during fiscal year 1996. This provision enabled OTA staff to concentrate up to the last days on completing almost all pending requests for committees, issuing 61 reports (sixteen of which were distributed after October 1) and also allowed the closeout team to carry out necessary final tasks, such as proper archiving to the National Archives and to create a set of CD-ROM's comprising all 755 of OTA's reports from 1972 to closure. Furthermore, with the help of the Architect of the Capitol, physical assets were made available to other congressional agencies. Recognition for this constructive provision, which maximized responsible preservation of OTA assets and responsibilities, is due to Senator Mack and the Appropriations Committees.

[A NOTE ABOUT FISCAL YEAR 1996 ACTIVITIES]

Because OTA's research activities were terminated as of the end of FY95, there will be no Annual Report for fiscal year 1996. As mentioned in the Director's statement, OTA was given an appropriation sufficient to conduct agency closeout activities and authority to continue 17 staff members for a few months for that purpose. Most of those activities are described elsewhere in this Annual Report, but they comprise personnel and financial recordkeeping and processing; delivery to Congress and dissemination to a wider audience of the reports finished at the close of FY95; preparation of the archival CD-ROM and establishment of continuing Internet sites for OTA OnLine; distribution of OTA's computers and other information

technology, furniture, and other physical assets, through the administrative control of the Architect of the Capitol; distributing to the extent possible the remaining stocks of OTA's publications; closing out and paying final invoices for contracts and purchase orders; and the archiving of OTA's records and other essential papers for inclusion in the National Archives.

[IN CONCLUSION]

Five aspects of the final year and termination stand out dramatically in retrospect. First, the staff of OTA worked extremely hard, when some would argue they had little reason to, to finish as many of the projects as possible before the shutdown. The result is an impressive body of work that will be of value to Congress and the public for years to come. The actions of the staff clearly and convincingly demonstrated their belief in the importance of the work they were doing.

Second, the staff of the agency conducted themselves during this trying period with an unmatched level of professionalism that serves only to enhance the reputation of the agency and stands as a true piece of evidence of the dedication of those individuals. No individual lashed out in the media at the Congress or its Members or staff, even when frustrated or angered by some of the misinformation about OTA that was circulating from time to time or simply by the idea that the staff's work was of insufficient value to continue. And no one threw down work in progress and walked away.

Third, in general, staff members have found new employment in good positions. OTA evidently is, as we have been told often, a very good place to have been in terms of career prospects. This excellent record of finding new positions holds in spite of the fact that a great many project staff, as mentioned above, continued working up to the very last days in September, although there is some correlation with how long it is taking some individuals to find new jobs with how long they delayed their job search in order to complete work.

Fourth is the sense of frustration that permeated these final months, as staff struggled to understand the decision to eliminate the agency despite their efforts over the years to operate in a nonpartisan fashion, building relationships and working for both Republicans and Democrats, both House and Senate, and conducting what we believed to be accurate, independent, valuable research.

The fifth, and last, aspect that stands out is the sense of pride all OTA staff feel at the often heroic efforts undertaken by those who knew us best: the Members of the congressional Board, their staffs, the Technology Assessment Advisory Council, and a great many of our peers and colleagues in academia, industry, and other sectors. It made a difference in the attitude of staff, and was personally rewarding to see those efforts, even though they ultimately failed, on OTA's behalf.

r e l e a s e s

of the industry, commerce, and international security division

[*The Industry, Commerce, and International Security Division was comprised of three research programs: Energy, Transportation, and Infrastructure; Industry, Telecommunications, and Commerce; and International Security and Space.*]

In FY 1995, this division published 14 assessment reports and 15 background papers.

Fusion Energy Program: The Role of TPX and Alternate Concepts (BP)
[requested by]
House Committee on Science

Nuclear Safeguards and the International Atomic Energy Agency
[requested by]
Senate Committee on Governmental Affairs
Senate Committee on Foreign Relations
[endorsed by]
House Permanent Select Committee on Intelligence
House Committee on Armed Services
Senate Committee on Banking, Housing, and Urban Affairs

Other Approaches to Civil-Military Integration: The Chinese and Japanese Arms Industries (BP)
[requested by]
House Committee on Armed Services

U.S.-Russian Cooperation in Space
[requested by]
House Committee on Science

The National Space Transportation Policy: Issues for Congress
[requested by]
House Committee on Science

Reducing the Costs of Collecting Meteorological Data (BP)
[requested by]
House Committee on Science, Subcommittee on Energy and Environment

Electronic Surveillance in a Digital Age (BP)
[requested by]
Congressman Michael G. Oxley

Issue Update on Information Security and Privacy in Network Environments (BP)
[requested by]
Senate Committee on Governmental Affairs

The Lower Tiers of the Space Transportation Industrial Base (BP)
[requested by]
House Committee on Science, Space, and Technology

Telecommunications Technology and Native Americans
[requested by]
Senate Committee on Indian Affairs

Environmental Technology: Analysis of Selected Federal R&D Programs (BP)
[requested by]
House Committee on Science
Senate Committee on Environment and Public Works

Foreign Eligibility for U.S. Technology Funding (BP)
[requested by]
Senator John D. Rockefeller, IV

Wireless Technologies and the National Information Infrastructure
[requested by]
House Committee on Science

International Partnerships in Large Science Projects (BP)
[requested by]
House Committee on Science

A History of the Department of Defense Federally Funded Research and Development Centers (BP)
[requested by]
Senate Committee on Armed Services and its Subcommittee on Defense Technology, Acquisition, and Industrial Base
House Committee on Armed Services

Renewing our Energy Future
[requested by]
House Committee on Science and its Subcommittee on Energy and Environment
Senator Charles E. Grassley
House Committee on Agriculture, Subcommittee on Department Operations, Nutrition, and Foreign Agriculture;

and Subcommittee on Resource Conservation, Research and Forestry
House Committee on Appropriations, Subcommittee on Energy and Water Development

Distributed Interactive Simulation of Combat (BP)
[requested by]
Senate Committee on Armed Services and its Subcommittee on Defense Technology, Acquisition, and Industrial Base
House Committee on Armed Services

Assessing the Potential for Civil-Military Integration: Selected Case Studies (BP)
[requested by]
Senate Committee on Armed Services and its Subcommittee on Defense Technology, Acquisition, and Industrial Base
House Committee on Armed Services

Reducing Earthquake Losses
[requested by]
House Committee on Science, Space, and Technology and its Subcommittee on Science

Bringing Health Care Online: The Role of Information Technologies
[requested by]
Senate Committee on Labor and Human Resources

Information Technologies for the Control of Money Laundering
[requested by]
Senate Committee on Governmental Affairs, Permanent Subcommittee on Investigations

Flat Panel Displays in Perspective
[requested by]
Senate Committee on Armed Services

Advanced Automotive Technology: Visions of a Super-Efficient Family Car
[requested by]
House Committee on Commerce
House Committee on Science
Senate Committee on Energy and Natural Resources
Senate Committee on Governmental Affairs

Environmental Monitoring for Nuclear Safeguards (BP)

[requested by]

Senate Committee on Governmental Affairs

Senate Committee on Foreign Relations

[endorsed by]

House Permanent Select Committee on Intelligence

House Committee on Armed Services

Senate Committee on Banking, Housing, and Urban Affairs

Improving the Prospects for Success in Future International Peace Operations: Tactics, Technology, Training (BP)

[requested by]

House Committee on Armed Services

Senate Committee on Armed Services

Global Communications: Opportunities for Trade and Aid

[requested by]

House Committee on International Relations

Innovation and Commercialization of Emerging Technologies

[requested by]

Senate Committee on Commerce, Science and Transportation

House Committee on Science, Space and Technology

The Technological Reshaping of Metropolitan America

[requested by]

Senate Committee on Banking, Housing and Urban Affairs

House Committee on Banking, Finance, and Urban Affairs and its Subcommittee on Economic Growth and Credit Formation

House Committee on Public Works and Transportation and its Subcommittee on Investigations and Oversight

The Effectiveness of Research and Experimentation Tax Credits (BP)

releases
of the health, education, and environment division

[*The Health, Education, and Environment Division was comprised of three research programs: Education and Human Resources; Environment; and Health.*]

In FY 1995, the Health, Education, and Environment Division published 12 assessment reports and 20 background papers.

Teachers and Technology: Making the Connection
[requested by]
Senate Committee on Labor and Human Resources
[endorsed by]
House Committee on Education and Labor
Senate Appropriations Committee

The Cost-Effectiveness of Colorectal Cancer Screening in Average-Risk Adults (BP)
[requested by]
House Committee on the Budget
House Committee on Ways and Means

Agriculture, Trade, and Environment: Achieving Complementary Policies
[requested by]
Senate Committee on Agriculture, Nutrition, and Forestry
House Committee on Agriculture
House Committee on Foreign Affairs

Costs and Effectiveness of Prostate Cancer Screening in Elderly Men (BP)
[requested by]
House Committee on Ways and Means, Subcommittee on Health

Hospital Financing in Seven Countries (BP)
[requested by]
House Committee on Ways and Means and its Subcommittee on Health
[endorsed by]
Senator Edward Kennedy
Senator Charles Grassley

State of the States on Brownfields: Programs for Cleanup and Reuse of Contaminated Sites (BP)
[requested by]
House Committee on Commerce, Subcommittee on Commerce, Trade, and Hazardous Materials

EPA Superfund Actions and ATSDR Public Health Data (BP)
[requested by]
House Committee on Commerce, Subcommittee on Commerce, Trade and Hazardous Materials

Effectiveness and Costs of Osteoporosis Screening and Hormone Replacement Therapy (BP), Vol. 1
[requested by]
Senate Special Committee on Aging

Effectiveness and Costs of Osteoporosis Screening and Hormone Replacement Therapy (BP), Vol. 2
[requested by]
Senate Special Committee on Aging

Coverage of Laser Technology by Health Insurers (BP)
[requested by]
Senator Edward Kennedy
[endorsed by]
Senate Special Committee on Aging
Senate Committee on the Budget
Congressman John Dingell

Adverse Reactions to HIV Vaccine: Medical, Ethical and Legal Issues (BP)
[requested by]
House Committee on Ways and Means, Subcommittee on Health

Federal Technology Transfer and the Human Genome Project (BP)
[requested by]
Senate Committee on Appropriations
Senate Committee on Labor and Human Resources

Cleaning Up Contaminated Wood-Treating Sites (BP)
[requested by]
House Committee on Appropriations, Subcommittee on VA, HUD, and Independent Agencies

Learning to Work: Making the Transition from School to Work
[requested by]
Senate Committee on Labor and Human Resources
House Committee on Education and Labor

Environmental Policy Tools:
A User's Guide
[requested by]
Senate Committee on Environment
and Public Works

Challenges for U.S. Agricultural
Research Policy
[requested by]
Senate Committee on Agriculture,
Nutrition, and Forestry

Targeting Environmental Priorities
in Agriculture: Reforming
Program Strategies
[requested by]
Senate Committee on Agriculture,
Nutrition, and Forestry

Gauging Control Technology and
Regulatory Impacts in Occupational
Safety and Health: An Appraisal
of OSHA's Analytic Approach
[requested by]
Senate Committee on Labor and
Human Resources
House Committee on Education
and Labor

Impacts of Antibiotic-Resistant
Bacteria
[requested by]
House Committee on Energy
and Commerce
Senate Committee on Labor
and Human Resources

Risks to Students in School
[requested by]
House Committee on Energy
and Commerce and its Subcommittee
on Health and the Environment
House Committee on Education
and Labor

Biologically Based Technologies
for Pest Control
[requested by]
House Committee on Agriculture
House Committee on Merchant
Marine and Fisheries
House Committee on Natural
Resources, Subcommittee
on National Parks, Forests,
and Public Lands

Fish Passage Technologies: Protection at Hydropower Facilities

[requested by]

House Committee on Merchant Marine and Fisheries

Nuclear Wastes in the Arctic: An Analysis of Arctic and Other Regional Impacts from Soviet Nuclear Contamination

[requested by]

Senate Committee on Appropriations, Subcommittee on Defense

Senate Committee on Governmental Affairs

Education and Technology: Future Visions (BP)

[requested by]

Senate Committee on Labor and Human Resources

[endorsed by]

House Committee on Education and Labor

Senate Appropriations Committee

Screening and Testing Chemicals in Commerce (BP)

[requested by]

Senate Committee on Environment and Public Works, Subcommittee on Toxic Substances, Research and Development

Current Status of Federal Involvement in U.S. Aquaculture (BP)

[requested by]

House Committee on Merchant Marine and Fisheries

Selected Technology Issues in U.S. Aquaculture (BP)

[requested by]

House Committee on Merchant Marine and Fisheries

The Effectiveness of AIDS Prevention Efforts (BP)

[requested by]

House Committee on Commerce, Subcommittee on Health and Environment

Impact of Health Reform on Rural Areas: Lessons from the States (BP)

Occupational Training for Young People in the United Kingdom (BP)
[requested by]
Senate Committee on Labor and Human Resources
House Committee on Education and Labor

Does Vocational Education Help the "Forgotten Half"?: Short-Term Economic Consequences of High School Vocational Education for Non-College-Students (BP)
[requested by]
Senate Committee on Labor and Human Resources
House Committee on Education and Labor

Technology and Policy for Suppressing Grain Dust Explosions in Storage Facilities (BP)

m e m b e r s *of the Technology Assessment Advisory Council*

[*The Technology Assessment Advisory Council (TAAC) was established by OTA's statute, and members were appointed by OTA's Congressional Technology Assessment Board (TAB). The Council advised TAB and the Director on issues and other matters related to science, technology, and technology assessment.*]

James Hunt, [*Chairman*]

Dr. Hunt is Distinguished Professor, Health Sciences Center, at the University of Tennessee in Memphis. He previously served as Chancellor of the Health Science Center and as the Dean of Medicine for the University. Prior to joining the University, he served as Chairman of the Department of Medicine at the Mayo Clinic.

Max Lennon, [*Vice Chairman*]

Dr. Lennon is President and CEO of Eastern Foods, Inc., Atlanta, Georgia. Previously he served as President of Clemson University. He also served on the faculties of Ohio State University, (Vice-President for Agricultural Administration and Executive Dean for Agriculture, Home Economics and Natural Resources), University of Missouri, and Texas Tech University.

Lewis M. Branscomb

Dr. Branscomb is the Albert Pratt Pubic Service Professor at Harvard's John F. Kennedy School of Government. He is a former executive of International Business Machines. Prior to joining IBM, he was the Director of the National Bureau of Standards.

Herbert D. [Ted] Doan

Mr. Doan is a Partner with Doan Associates. He was Chairman and Founder of Doan Resources Corporation. He served as President of the Dow Chemical Company for nine years.

Neil E. Harl

Dr. Harl is the Charles F. Curtiss Distinguished Professor of Economics at Iowa State University, where he has served on the faculty since 1964.

Joshua Lederberg

Dr. Lederberg was President of Rockefeller University, New York. He is the former Chairman of the Department of Genetics at Stanford University School of Medicine. He is a member of the National Academy of Sciences and is a Nobel Laureate in Physiology and Medicine.

John F. M. Sims

Dr. Sims is Vice President for Marketing for Usibelli Coal Mine, Inc. He previously served as Director of the Office of Mineral Development with the Alaska Department of Commerce and Economic Development. Dr. Sims also taught Geological Engineering at the University of Alaska-Fairbanks.

L. Douglas Smoot

Dr. Smoot is Dean Emeritus, College of Engineering and Technology, at Brigham Young University. He is also Director of the Advanced Combustion Engineering Research Center. He has been associated with the Brigham Young University since 1967. Dr. Smoot previously served as a visiting assistant professor at the California Institute of Technology and as an engineer with Lockheed Propulsion.

Marina v.N. Whitman

Dr. Whitman is a Professor at the Institute of Public Policy Studies at the University of Michigan. Previously she served as the Vice President and Group Executive for Public Affairs Staffs Group at General Motors Corporation. She also served as Vice President and Chief Economist at General Motors. Prior to joining General Motors she taught at the University of Pittsburgh.

[*Statutory Members*]

Charles A. Bowsher

Mr. Bowsher is Comptroller General of the United States and Director of the U. S. General Accounting Office.

Daniel Mulhollan

Dr. Mulhollan is Director of the Congressional Research Service, U. S. Library of Congress.

l i s t i n g
of the staff for fiscal year 1995

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Debra Datcher, Manager, Special Projects
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Philip Jackson, Assistant Manager, Telecommunications and Information Systems
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Wazir Shpoon, Systems Technician

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Michael Brown, Service Center Technician

BUILDING SERVICES

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Robert Raines, Clerk/Courier

MEDICAL SERVICES

Janet Hammond, Resident Nurse

CONFERENCE CENTER

Edie Grandstaff, Coordinator
Sean Copeland, Assistant Coordinator

l i s t i n g
of awards and fellowship programs

OTA REPORTS RECOGNIZED AS NOTABLE

[*Office of Technology Assessment reports, prepared to provide the U.S. Congress with thorough analyses of cutting-edge science and technological issues, have garnered awards for outstanding quality in publications. The following OTA titles have been honored for writing, editorial content, layout and design, and cost-effectiveness.*]

NOTABLE DOCUMENTS PANEL OF THE AMERICAN LIBRARY ASSOCIATION'S GOVERNMENT DOCUMENTS ROUND TABLE

[*GODART selects those documents they consider to be the best of the government information sources produced at the federal, state, and local levels and across the globe. These documents "expand our knowledge, enhance the quality of life, and/or contribute to an understanding of government."*]

After the Cold War: Living with Lower Defense Spending
Biological Rhythms: Implications for the Worker
Changing by Degrees: Steps to Reduce Greenhouse Gases
Complex Cleanup: The Environmental Legacy of Nuclear Weapons Production
Genetic Monitoring and Screening in the Workplace
Global Arms Trade
Harmful Non-Indigenous Species in the United States
Health Care in Rural America
Making Government Work: Electronic Delivery of Federal Services
Preparing for An Uncertain Climate, Volume 2
Proliferation of Weapons of Mass Destruction: Assessing the Risks
Testing in American Schools: Asking the Right Questions
U.S. Diary Industry at a Crossroads: Biotechnology and Policy Choices

BLUE PENCIL AWARDS OF THE NATIONAL ASSOCIATION OF GOVERNMENT COMMUNICATORS

[*NAGC conducts the Blue Pencil Competition as an annual recognition of outstanding government communications projects and producers. OTA reports consistently recognized in this competition included:*]

Adult Literacy and New Technologies: Tools for a Lifetime
Biological Components for Substance Abuse and Addiction
Civilian Satellite Remote Sensing: A Strategic Approach
Cystic Fibrosis & DNA Tests: Implications of Carrier Screening
Electronic Bulls and Bears: U.S. Securities Markets and Information Technology
Energy Efficiency in the Federal Government: Government by Good Example?
Evaluation of the Oregon Medicaid Proposal
Exploring the Moon and Mars
Genetic Monitoring and Screening in the Workplace
HIV in the Health Care Workplace
Redesigning Defense: Planning the Transition to the Future U.S. Defense Industrial Base
Rural America at the Crossroads: Networking for the Future
Technologies for Understanding and Preventing Substance Abuse and Addiction
Testing in American Schools: Asking the Right Questions

THE MORRIS K. UDALL FELLOWSHIP PROGRAM

[*The Udall Fellowship Program was awarded to up to six individuals each year for a one-year appointment at OTA. It was established in April 1991 by the Technology Assessment Board in honor of Morris K. Udall, retired congressman from Arizona who served 30 years in the House of Representatives and 18 years on the Technology Assessment Board. Qualified candidates demonstrated exceptional ability in areas needed in OTA's work, such as the physical or biological sciences, engineering, law, economics, environmental and social sciences, and public policy. Candidates possessed significant experience in technical fields or management or had completed research at the doctoral level.*]

[*Fellow, 1995-96*]
Joyce Smith

[*Fellows, 1994-95*]
Elise Berliner
William Creager

[*Fellows, 1993-94*]
Dean Cheng
Betsy Gunn
Lois Joellenbeck

[*Fellows, 1992-93*]
Lucian Hughes
Thomas Vischi

[*Fellow, 1991-92*]
Carol Edwards

[*Fellows, 1990-91*]
Jacqueline Corrigan
Kathy Hudson
David Recker

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Evridiki Hatziandreu
Paul Komor

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Gale Morse
Willie Pearson
Marie Walsh
Marc Zimmerman

[*Fellows, 1987-88*]
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Michael Gluck
Jana Milford
Robin Roy
Mark Schaefer

[*Fellows, 1986-87*]
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Philip Shapira

[*Fellows, 1985-86*]
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Gregory van der Vink
Theodora Colborn
Kathy Wagner

[*Fellows, 1984-85*]
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Greg Eyring
Marcel LaFollette
Arati Prabhakar

[*Fellows, 1983-84*]
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Gary Ellis
Randolph Ware
Howard Levenson
Miriam Heller

[*Fellows, 1982-83*]
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Julia Crowley
Richard Hersh
Eric Hyman

[*Fellows, 1981-82*]
Nanette Newell
Susan Cohen
Robert Dillon
Linda Curran

[*Fellows, 1980-81*]
Judith Randal
James Ryan
Rosina Bierbaum
Norman Balmer
Arthur Kohrman
Gerald Kleinenberg

[*Fellows, 1979-80*]
Yupo Chan
Pamela Doty
Raymond Williamson
Chris Elfring

[*Fellows, 1978-79*]
James Beall
James Cornehls
Robert Friedman
Arlene Maclin
Daniel Panshin
Leonard Saxe
William Scanlon
Irene Szopo

[*Fellows, 1977-78*]
Ruann Pengov
Lynne Pietz
Michael Riddiough

CONGRESSIONAL FELLOWSHIP IN HEALTH POLICY

[*The Milbank Memorial Fund and OTA established the Congressional Fellowship in Health Policy in 1992 to be served at OTA beginning in September 1992. The program sought candidates with substantial training and experience in research and a strong interest in health policy. The fellowship provided an opportunity for an individual of proven ability and considerable promise to work with OTA researchers to assist Congress in its deliberations of science and technology issues affecting our Nation's health policy and to gain a better understanding of the ways in which Congress establishes national policy related to these issues.*

The Fund and OTA invited applications from individuals who had demonstrated ability in research on issues of health policy. Applicants possessed doctorates in the social sciences or related areas or had terminal scientific or professional degrees and considerable training in research using the policy sciences.]

[*Fellows, 1994-95*]
Cynthia Palmer
Rochelle Rollins

[*Fellow, 1993-94*]
Gerard Fergerson

[*Fellow, 1992-93*]
Sean Tunis

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*of the advisory panel members**

INDUSTRY, COMMERCE, AND INTERNATIONAL SECURITY DIVISION

[*Energy, Transportation, and Infrastructure Program*]

[▲]Advanced Automotive Technology Project

Don Kash [*Chairperson*]
Professor of Public Policy
George Mason University

Steve Barnett, Principal
Global Business Network

Ron Blum, Senior Auto Analyst
International Union United
Auto Workers

Tom Cackette, Chief Deputy
Executive Officer
California Air Resources Board

Malcolm R. Currie, Chairman
M-B Resources, Inc.

John DeCicco, Senior Research Associate
American Council for an
Energy-Efficient Economy

Kennerly H. Digges, Assistant Director
National Crash Analysis Office Center
George Washington University

Christopher Flavin, Vice President
for Research
Worldwatch Institute

Christopher Green, Director
General Motors NAO R&D Center

Dave Greene, Senior Research Staff
Center for Transportation Analysis
Oak Ridge National Laboratory

Maurice Isaac, Manager
Automotive Technical Programs
GE Automotive

Mary Ann Keller, Managing Director
Furman, Selz, Inc.

Gunnar Larsson, Vice President
of Research
Volkswagen AG

Marianne Mintz, Transportation Systems
Engineer
Environmental & Economic Analysis
Section
Argonne National Laboratories

Robert Mull, Director
Partnership for a New Generation
of Vehicles
Ford Motor Company

Nobukichi Nakamura, Project General
Manager
Toyota Motors

[*Affiliations are at time of appointment to panel or workshop.]

Peter T. Peterson, Director
Marketing Strategies and Product Applications
U.S. Steel

[▲]Reducing Earthquake Losses

Gilbert F. White [*Chairperson*]
Professor
University of Colorado

Jesus Burciago, Assistant Fire Chief
Los Angeles County Fire Department

Charles D. Eadie, Assistant Planning Director
City of Watsonville, California

Dean C. Flesner, Vice President of Operations
State Farm Fire and Casualty Company

I.M. Idriss, Professor
Department of Civil and Environmental Engineering
University of California at Davis

Cynthia Ingham, Assistant Director for Capital Programs
University of California at Los Angeles

Tom Jordan, Professor and Department Chair
Department of Earth, Atmospheric and Planetary Sciences
Massachusetts Institute of Technology

Joseph Kelly, Senior Consulting Engineer
Port Authority of New York and New Jersey

Howard Kunreuther, Director of Risk Management Center
The Wharton School
University of Pennsylvania

Mike Lynch, Earthquake Program Manager
Kentucky Department of Emergency Services

Steven A. Mahin, Professor
Earthquake Engineering Research Center
University of California at Berkeley

Diane F. Merten, Chair
Benton County Emergency Management Council

Joanne M. Nigg, Director
Disaster Research Center
University of Delaware

Dennis K. Ostrum, Consulting Engineer
Southern California Edison

Vernon H. Persson, Chief
Division of Safety of Dams
California Department of Water Resources

James Smith, Executive Director
Building Seismic Safety Council

Paul G. Somerville, Senior Associate
Woodward Clyde Consultants

Robert S. Yeats, Professor
Department of Geosciences
Oregon State University

Nabih Youssef, President
Nabih Youssef and Associates

[▲]Renewing Our Energy Future

Robert W. Fri [*Chairperson*]
President
Resources for the Future

Jim Batchelor, Vice President
Technical Services
SF Services, Inc.

Art Brooks, President
Sun Earth, Inc.

Edward J. Carlough, General President
Sheet Metal Workers International
Association

John Corsi, Chairman and CEO
Solarex

J. Michael Davis, Director
Sales and Marketing
Golden Technologies Company, Inc.

David Dawson
Forest Policy Consultant

Elizabeth Paine Hughes
Commissioner, State of Maine

W. Densmore Hunter, Department
Manager, Process R&D
Weyerhauser Company

Renz D. Jennings, Commissioner
Arizona Corporation Commission

David Kearney, President
Kearney and Associates

John Kennedy, Product General Manager
Space Systems and Advanced
Applications
Allied-Signal Aerospace

Alden Meyer, Director
Climate Change and Energy Program
Union of Concerned Scientists

Roberta Nichols, Manager
Electric Vehicle Strategy and Planning
Car Product Development
Ford Motor Company

Mike Nicklas, President
Innovative Design

Dale Osborn, Vice President
Kenetech/U.S. Windpower, Inc.

Bruce Pasternack, Senior Vice President
Booz Allen and Hamilton

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Victor Shaio, President
New Energy Corporation of Indiana

Scott Sklar, Executive Director
Solar Energy Industries Association

Carl Weinberg
Weinberg Associates

Robert H. Williams, Senior Research Scientist
Center for Energy and Environmental Studies
Princeton University

Kurt E. Yeager, Senior Vice President
Technical Operations
Electric Power Research Institute

[▲]The Technological Reshaping of Metropolitan America

Marie Howland [*Chairperson*]
Director, Department of Urban Planning
University of Maryland

Marc Bendick, Principal
Bendick and Egan Economic Consultants, Inc.

Scott Bernstein, President
Center for Neighborhood Technology

John A. Butler, Vice President
National Urban League

John Claypool, Executive Director
Greater Philadelphia First

Robert Embry, President
Abell Foundation

Pete C. Garcia, President and CEO
Chicanos por la Causa, Inc.

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Environmental Consultant
PR Gilezan Company

Franklin James, Professor of Public Policy
University of Colorado

Mark Kaufman, Senior Vice President
Director of Corporate Development
Chase Manhattan Bank, N.A.

Thomas Larson
Transportation Consultant

Tom Moody[2]
Former Mayor of Columbus, Ohio

Mitchell L. Moss, Director
Urban Research Center
New York University

Robert Paaswell, Director
University Transportation Research Center
City College, New York

Sergio Rodriguez, Deputy City Manager
City of Miami Beach

Charles Royer, Former Mayor of Seattle
Senior Lecturer
Department of Public Health and Community Medicine
University of Washington

Paul L. Silverman, Vice President
Geltmore, Inc.

Carl Swearingen, President
BellSouth Georgia
BellSouth Telecommunications, Inc.

Joel Tarr, Professor of History
Carnegie Mellon University

Mary Margaret Whipple, Chairman
Arlington County Board

Regina Williams, City Manager
City of San Jose

Robert D. Yaro, Executive Director
Regional Plan Association

[[1]Retired Director of Environmental and Energy Affairs, Chrysler Corporation

[2]Retired]

[*Industry, Telecommunications, and Commerce Program*]

[▲]Bring Health Care Online: The Role of Information Technologies

Clement McDonald [*Chairperson*]
Distinguished Professor of Medicine
Indiana University School of Medicine

June Abbey, Director of Research
Institute of Innovation
Shadyside Hospital

Stephen Deutsch, Professor
Labor Education and Research Center
University of Oregon

Elliott Fisher, Associate Professor of Medicine
Dartmouth Medical School

Bonnie Guiton Hill, Dean
McIntire School of Commerce
University of Virginia

James Hazelrigs, Executive Director
Medical Database Commission
State of North Carolina

Susan Horn, Senior Scientist
Institute for Health Care Delivery Research
Intermountain Health Care

James Hunt, Distinguished Professor
Health Sciences Center
University of Tennessee

Nancy Milio, Professor of Health Policy & Administration
University of North Carolina

Lori Muhlstein *, Market Manager of Health Care
Bell Atlantic Corporation

John Nyman, Associate Professor
Institute for Health Services Research
University of Minnesota

Madison Powers, Senior Research Scholar
Kennedy Institute of Ethics
Georgetown University

Jane Preston, President
American Telemedicine Association

Marsha Radaj, Vice President of Operations
Wisconsin Health Information Network

William Reed
Quantum Health Resources, Inc.

Bert Tobin, Executive Vice President
Benton International

Bradley Ware
Fairfax, VA

[*Until December 1994]

[▲]Environmental Technology: Analysis of Selected Federal R&D Programs

Thomas Gladwin [*Chairperson*]
Leonard N. Stern School of Business
New York University

Alvin Alm, Director & Vice President
SAIC

Carol Andress, Economic Development Specialist
Environmental Defense Fund

Darryl Banks, Director
Technology and Environment Program
World Resources Institute

Mary Bernhard
U.S. Chamber of Commerce

Harry Fatkin, Division Vice President
Polaroid Corporation

Robert Frosch, Senior Research Fellow
John F. Kennedy School of Government
Harvard University

Stephen Gage, President
Cleveland Advanced Manufacturing Program
Great Lakes Manufacturing Technology Center

Kenneth Geiser, Director
Toxics Use Reduction Institute
University of Massachusetts-Lowell

Gary Hunt, Director
North Carolina Office of Waste Reduction

Greg Pitts, Director
Environmental Programs
Microelectronics and Computer Technology Corporation

Robert Pojasek, Senior Program Director
Cambridge Environmental, Inc.

Linda Giannelli Pratt, Program Manager
San Diego County Department of Environmental Health

Elizabeth Rose, Assistant Vice President
Environmental Affairs
Northern Telecom, Ltd.

C. Thomas Sciance
Sciance Consulting Services, Inc

John Sheehan, Legislative Director & Assistant to the President
United Steel Workers of America

William Sonntag, Jr., Director
Government Relations
National Association of Metal Finishers

[▲]Information Technologies for the Control of Money Laundering

Eloy Garcia, Assistant Special Agent in Charge
Operational Commander

W. Douglas Johnson, Assistant Director
Division of Banking
Office of the Comptroller
State of Florida

Robert MacAllister, Vice President & Senior Associate Counsel
The Chase Manhattan Bank, N.A.

Bruce Porter, Associate Professor of Computer Science
University of Texas at Austin

Priscilla Regan, Assistant Professor
Department of Public & International Affairs
George Mason University

Joel Reidenberg, Associate Professor of Law
Fordham University School of Law

Robert Serino, Deputy Chief Counsel
Office of the Comptroller of the Currency
U.S. Department of the Treasury

John Stern
University of South Carolina

David Vogt, Assistant Director
Financial Crimes Enforcement Network [FinCEN]

Sarah Welling, Professor of Law
College of Law
University of Kentucky

[▲]Innovative and Commercialization of Emerging Technologies

Avtar S. Oberai [*Chairperson*]
Consultant

Paul Brickmeier, Vice President of Advanced Development
SVG Lithography Systems, Inc.

Linda A. Capuano, Vice President
Conductus, Inc.

Sidney C. Chao
Hughes Environmental Systems, Inc.

Robert Cook-Deegan, Director
Division of Behavioral Sciences and Mental Disorders
Institute of Medicine
National Academy of Sciences

Mark Cunningham
Oppenheimer and Company

Mark Eaton, President
JMC Ventures

Robert T. Fraley, Group Vice President and General Manager
New Products Division
Monsanto Company

Charles E. Harris, Chairman and CEO
Harris & Harris Group, Inc.

Maryellen R. Kelley, Visiting Professor
Industrial Performance Center
Massachusetts Institute of Technology

Ken Kennedy, Director
Center for Research in Parallel Computation
Rice University

William G. Morin, Director of Technology Policy
National Association of Manufacturers

Mark Myers, Senior Vice President
Xerox Corporation

Walter H. Plosila, Executive Director
North Carolina Alliance for Competitive Technologies

John T. Preston
Director of Technology Development
Massachusetts Institute of Technology

Michael A. Rappa, Associate Professor
Sloan School of Management
Massachusetts Institute of Technology

Richard S. Rosenbloom
David Sarnoff Professor of Business Administration
Harvard Business School

Maxine L. Savitz
Garrett Processing Division
Allied-Signal Aerospace

Louis Tornatzky, Director
Southern Technology Council
Southern Growth Policies Board

Stephen Turner, President and CEO
Oncor Inc.

Les Vadasz, Senior Vice President
Intel Corporation

[▲]Telecommunications Technology and Native Americans: Opportunities and Challenges

David Iha [*Chairperson*]
Provost
Kauai Community College

Haunani Apoliona, President
Alu Like
Honolulu, Hawaii

George Baldwin, Professor
California State University at Monterey Bay

Manley Begay, Executive Director
American Indian Economic Development Project
John F. Kennedy School of Government
Harvard University

Ann Bishop, Assistant Professor
Graduate School of Library and Information Science
University of Illinois at Urbana-Champaign

Connie Buffalo, President
Electronic Pathways
Vice President, Mind Extension Institute
Jones Interactive

Steve Cisler, Senior Scientist
Advanced Technology Group
Apple Computer, Inc.

Nedra Darling, Director
Reel Indian Productions

Gary Garrison, Telecommunications
Project Manager
American Indian Higher Education
Consortium

Willie Hensley, Commissioner
Economic Development
Alaska Department of Commerce

Russell Huffman, Jr., Public Health
Director
Yukon-Kuskokwim Health Corporation

Rio Lara Bellon
Telecommunications Network Project
Extension Indian Reservation Program
Washington State University and
Confederated Tribes of the Chehalis

Joseph Orozco, Producer
California Indian Radio Project
Indigenous Communications Association

Randy Ross
Telecommunications Consultant

Joan Timeche, Program Director
Center for American Indian Economic
Development
Co-Executive Director, National
Executive Education Program for Native
American Leadership
Northern Arizona University

Charles Trimble, President
Red Willow Institute

Dave Warren, Vice President
Media Resources Associates, Inc.

Madonna Peltier Yawakie, Tribal Nations
Market Manager
US West Communications

[▲]Wireless Technologies and
the National Information Infrastructure

Rob Kling [*Chairperson*]
Professor
University of California, Irvine

Alfred F. Boschulte, President
and Chairman
NYNEX Mobile Communications
Company

Timothy J. Brennan
Resources for the Future

Steven D. Dorfman, President
Hughes Telecommunications and Space
Company

Francis J. Erbrick, Senior Vice President
United Parcel Service

Susan Hadden[1], Professor
LBJ School of Public Affairs
University of Texas at Austin

Ellwood R. Kerkeslager, Vice President
AT&T

Jim Lovette, Principal
Scientist Apple Computer, Inc.

John Major, Senior Vice President
Motorola, Inc.

Howard Miller, Senior Vice
President-Broadcast
Public Broadcasting Service

Alex Netchvolodoff, Vice
President-Public Policy
Cox Enterprises, Inc.

Stewart D. Personick, Assistant
Vice President
Bellcore

William W. Redman, Jr., Commissioner
North Carolina Utilities Commission

W. Scott Schelle, Chief Executive Officer
American Personal Communications

Jim Strand, President
Lincoln Telecommunications

William F. Sullivan, General Manager
KPAX-TV

Laurel L. Thomas
Telecommunications Consultant

Marilyn B. Ward, Division Commander
Orlando Police Department

Daniel Weitzner, Deputy Director
Center for Democracy and Technology

[1Deceased.]

[*International Security and Space Program*]

[▲]Defense Modeling and Simulation
Project

George Rathjens [*Chairperson*]
Professor of Political Science
Massachusetts Institute of Technology

Donald Blumenthal, Consultant
Lawrence Livermore National Laboratory

Jerome Bracken, Adjunct Professor
of Operations Research
Yale University

Edward C. Brady, Managing Partner
Strategic Perspectives, Inc.

David R. Cheriton, Professor
of Computer Science
Stanford University

Paul K. Davis, Corporate Research
Manager
The RAND Corporation

Col. Trevor N. Dupuy*, President
The Dupuy Institute

John Englund, President
Analytic Services, Inc.

Joseph P. Fearey, Project Scientist
Corps Battle Simulation
Jet Propulsion Laboratory

Amoretta M. Hoeber, President
AMH Consulting

John D. Kettelle
Consultant

Frank Lanza, President and Chief
Operating Officer
Loral Corporation

Creve Maples, Principal Investigator
Sandia National Laboratory

Jed Marti, Senior Computer Scientist
Sarcos Research, Inc.

Duncan Miller, Senior Staff
Lincoln Library
Massachusetts Institute of Technology

Stuart H. Starr, Director of Plans
Massachusetts Institute of Technology

Lawrence D. Stone, Senior Vice President
Metron, Inc.

Jack Thorpe, Corporate Vice President
Science Applications International
Corporation

Verena S. Vomastic, Research Analyst
Institute for Defense Analyses

Jordan Weisman, President
Virtual World Entertainment

[*Deceased June 5, 1995.]

[▲]The National Space Transportation
Policy: Issues for Congress

Ronald Brunner [*Chairperson*]
Director
Center for Public Policy Research
University of Colorado

Edward C. Aldridge, Jr., President
and CEO
The Aerospace Corporation

Buzz Aldrin
Apollo 11 Astronaut and Consultant

Radford Byerly, Jr.
Consultant

Thomas Burson, Vice President
and General Manager
Space Transportation
McDonnell Douglas Aerospace

Paul J. Coleman, Jr., Director
National Institute for Global
Environmental Change
University of California at Los Angeles

Lt. Gen. Donald L. Cromer,
USAF [*retired*]
President
Hughes Space and Communications
Company

Henry J. Dinenno, Vice President
Advanced Programs & Business Development
Space Systems Division
Rockwell International Corporation

Isaac T. Gillam, IV, Senior Vice President
OAO Corporation

Michael D. Griffin, Senior Vice President
Program Development
Space Industries

Frederick H. Hauck, President and CEO
INTEC

Clark W. Hawk, Director
Propulsion Research Center
University of Alabama at Huntsville

Douglas A. Heydon, President
Arianespace, Inc.

Joan Johnson-Freese, Associate Professor
Department of National Security Studies
Air War College

Jon B. Kutler, President
Quarterdeck Investment Partners, Inc.

Ronald G. Peterson, Vice President & General Manager
Space/Strategic Propulsion
Hercules Aerospace Company

James D. Phillips, Director of Engineering Development [retired]
Kennedy Space Center

Thomas F. Rogers, President
Sophron Foundation

Jerome Simonoff
Consultant

Larry N. Speight, Vice President
Space and Strategic Systems
Honeywell

Courtney A. Stadd, Managing Partner
Global Technology Ventures

Peter B. Teets, President
Information and Services Sector
Lockheed Martin Corporation

David W. Thompson, President and CEO
Orbital Sciences Corporation

Joseph P. Zimonis, Executive Vice President & General Manager
USBI Company

[▲]Nuclear Safeguards and the International Atomic Energy Agency

James E. Goodby[1] [*Chairman through March 23, 1993*]
Distinguished Service Professor
Carnegie-Mellon University

James F. Leonard[2] [*Chairman since June 1, 1993*]
Executive Director
Washington Council on Non-Proliferation

George Anzelon, Associate Division Leader
Lawrence Livermore National Laboratories

Will D. Carpenter
Chemical Industry Consultant

Lewis A. Dunn, Assistant Vice President
Science Applications International Corporation

Randall Forsberg, Executive Director
Institute for Defense and Disarmament Studies

Thomas R. Fox, Director
Office of National Security Technology
Pacific Northwest Laboratories

Alan R. Goldhammer, Director of Technical Affairs
Industrial Biotechnology Association

John M. Googin[3], Senior Staff Consultant
Martin Marietta Energy Systems, Inc.

Robert G. Gough, Senior Member Technical Staff
Sandia National Laboratories

Elisa D. Harris[4], Senior Research Analyst
The Brookings Institution

Geoffrey Kemp, Senior Associate
Carnegie Endowment for International Peace

Joshua Lederberg[5], Professor
Rockefeller University

John W. Lewis
Center for International Security and Arms Control
Stanford University

Lee W. Mercer, Corporate Export Manager
Digital Equipment Corporation

Matthew S. Meselson
Department of Biochemistry and Molecular Biology
Harvard University

Stephen M. Meyer
Center for International Studies
Massachusetts Institute of Technology

Gary Milhollin, Director
Wisconsin Project on Nuclear Arms Control

Marvin M. Miller, Senior Research Scientist
Department of Nuclear Engineering
Massachusetts Institute of Technology

Janne E. Nolan, Senior Fellow in Foreign Policy
The Brookings Institution

William C. Potter, Director
Center for Russian and Eurasian Studies
Monterey Institute of International Studies

Barbara Hatch Rosenberg, Professor
Division of Natural Sciences
State University of New York at Purchase

Lawrence Scheinman[6], Associate Director
Peace Studies Program
Cornell University

Leonard S. Spector, Senior Associate
Carnegie Endowment for International Peace

Sergio C. Trindade, President
SE[2]T International, Ltd.

[[1]Resigned March 22, 1993, to become Chief U.S. Negotiator for Safe and Secure Dismantlement of Nuclear Weapons.

[2]Panel member until June 1, 1993; panel chair after June 1, 1993.

[3]Deceased.

[4]Resigned January 29, 1993, to join National Security Council staff.

[5]Ex-officio; Member of Technology Assessment Advisory Council.

[6]Resigned August 13, 1993, to become Counselor for Nonproliferation in the U.S. Department of Energy.]

[workshops]

Assessing the Potential for Civil-Military Integration

The Effectiveness of Research and Experimentation Tax Credits

Fusion Energy Program: The Role of TPX and Alternate Concepts

Global Communications: Opportunities for Trade and Aid

Improving the Prospects for Success in Future International Peace Operations: Tactics, Technology, Training

International Partnerships in Large Science Projects

Issue Update on Information Security and Privacy in Network Environments

Other Approaches to Civil-Military Integration: The Chinese and Japanese Arms Industries

Reducing the Costs of Collecting Meteorological Data

U.S.-Russian Cooperation in Space

HEALTH, EDUCATION, AND ENVIRONMENT DIVISION

[*Education and Human Resources Program*]

[▲]Federal Technology Transfer and the Human Genome Project

LeRoy B. Walters [*Chairperson*]
Center for Bioethics
Kennedy Institute of Ethics
Georgetown University

Charles Auffray, Project Director
Genethon
Evry, France

David Botstein, Professor
Department of Genetics
Stanford University Medical Center

Robert M. Cook-Deegan, Senior Program Officer
National Academy of Sciences

Rebecca S. Eisenberg, Professor
University of Michigan Law School

James F. Haley, Jr., Partner
Fish and Neave

Marilyn Hartig
Bristol-Myers Squibb

Max D. Hensley, Vice President for Intellectual Property
Gilead Sciences, Inc.

Thomas D. Kiley
Consultant

William A. Linton, III, President and Chairman
Promega Corporation

Lita L. Nelsen, Director
Technology Licensing Office
Massachusetts Institute of Technology

Deborah Nickerson
Department of Molecular Biotechnology
University of Washington

David A.A. Owen, Director
Industrial Collaboration & Licensing
Medical Research Council
London, United Kingdom

J. David Roessner, Professor
School of Public Policy
Georgia Institute of Technology

Joseph Straus
Max Planck Institut for Foreign and International Patent, Copyright, and Competition Law
Munich, Germany

J. Craig Venter, President and Director
The Institute for Genomic Research

Teri F. Willey, Associate Director
Purdue Research Foundation

Ronald G. Worton, Geneticist-in-Chief
Hospital for Sick ChildrenToronto, Canada

[▲]Learning to Work: Making the Transition From School to Work

Edward Donley [*Chairperson*]
Former Chairman
Air Products and Chemicals, Inc.

Thomas Bailey, Director
Institute on Education and the Economy
Teachers College
Columbia University

Sue E. Berryman, Senior Education Specialist
The World Bank

David Finegold, Policy Analyst
The RAND Corporation

Douglas Fraser, Professor
Labor Studies
Wayne State University

Daniel Gescheidle, President
Educational Foundation

Thomas Kane, Visiting Fellow
Economic Studies
The Brookings Institution

Robert Klabenes, Provost
Oklahoma State University-Okmulgee

Alan Lesgold, Professor of Psychology
Learning Research and Development Center
University of Pittsburgh

Paul Osterman, Professor
Alfred P. Sloan School of Management
Massachusetts Institute of Technology

Hilary Pennington, President and CEO
Jobs for the Future

Hillard Pouncy
Consultant

Marilyn Raby, Director
Curriculum Services
Sequoia Union High School District

Piedad Robertson, Superintendent and President
Santa Monica Community College

Nan Skelton, Director
Training and Youth Development
Hubert Humphrey Institute

David Stern, Professor of Education and Executive Director
National Center for Research in Vocational Education

Susan Stucky, Associate Director
Institute for Research on Learning

Marina v.N. Whitman, Professor
Institute for Public Policy Studies
University of Michigan

Joan Wills, Director
Center for WorkForce Development
Institute for Educational Leadership

[▲]Teachers and Technology: Making the Connection

Allen Glenn [*Chairperson*]
Dean, College of Education
University of Washington

Milton Chen, Director
Center for Education and Lifelong Learning
KQED

Chris Cross, President
Council for Basic Education

Molly Drake, Director
Alternate Teacher Preparation Program
University of South Florida

Lee Ehman, Professor of Education
Indiana University

Geoffrey Fletcher, Interim Executive Deputy Commissioner
Curriculum, Assessment, and Professional Development
Texas Education Agency

Keith Huettig, Board of Directors
National School Boards Association

Yolanda Jenkins, Education Specialist
Compaq Computers, Inc.

Stanley Johnson, Science Teacher
Jefferson Junior High School

Leslie Lemon Hunt, Second Grade Teacher
Beauvior Elementary School

Henry R. Marockie, Superintendent of Schools
West Virginia State Department of Education

Argelio B. Perez
Education Consultant

Dwight Prince, Principal
Robert E. Lee Elementary School

Tom Snyder, President
Tom Snyder Productions

Adam Urbanski, President
Rochester Teachers Association

Valerie J. Wilford, Executive Director
Illinois Valley Library System

Art Wise, President
National Council for Accreditation of Teacher Education

Kristina Woolsey, Distinguished Scientist
Advanced Technology Group
Apple Computer, Inc.

[*Environment Program*]

[▲]Agriculture, Trade, and Environment: Achieving Complementary Policies

Alexander F. McCalla [*Chairperson*]
Director, Agriculture & Natural Resources Department
The World Bank

Sandra Batie
Elton R. Smith Professor of Food & Agricultural Policy
Michigan State University

William L. Bryant, Chairman
W.L. Bryant Company

Anne Chadwick, Trade Policy Advisor
California Department of Food & Agriculture
The Chadwick Company

John M. Duxbury, Director
Agricultural Ecosystems Program
Cornell University

Peter Emerson, Senior Economist
Environmental Defense Fund

Dan Esty, Director
Yale Center for Environmental Law & Policy

David Frederickson, President
Minnesota Farmers Union

Stephen R. Gliessman, Director
Department of Agroecology Program
University of California

Ralph W.F. Hardy, President
Boyce Thompson Institute

Robbin Johnson, Corporate Vice President
Cargill, Inc.

Jack Laurie, President
Michigan Farm Bureau

Kitty Reichelderfer Smith, Director of Policy Studies
Henry A. Wallace Institute for Alternative Agriculture

Ann Veneman, Counsel
Patton, Boggs, & Blow

Justin R. Ward, Senior Resource Specialist
Natural Resources Defense Council

Cecil A. Watson
Farmer

Pete Wenstrand, President
National Corn Growers Assoc.

[▲]Aquaculture: Food and Renewable Resources from U.S. Waters

Don Abt
Marine Biological Laboratory
Oceanographic Institute
Woods Hole

Jan Auyong, Project Manager
Mar Res Associates

John Bardach, Senior Marine Advisor
Environment and Policy Institute

Merry Camhi, Ecologist/Staff Scientist
Audubon Society

John S. Corbin, Manager
Aquaculture Development Program
Honolulu, Hawaii

Mike Freeze, Vice President
Keo Fish Farm, Inc.

Michael Hastings, Executive Director
Maine Aquaculture Innovation Center

Timothy K. Hennessy, President
Ekk Will Waterlife Resources

Bille Hougart, Vice President
Oceanic Institute

Robert Hulbrock, Aquaculture Coordinator
California Department of Fish and Game

Ann Kapuscinski, Associate Professor
Sea Grant College Program
University of Minnesota

Roy Martin, Executive Director
National Aquaculture Council
National Fisheries Institute

Joseph McCraren, Executive Director
National Aquaculture Association

Ted McNulty, Aquaculture Coordinator
Arkansas Development Finance Authority

David Ortman, Director
North West Office
Friends of the Earth

John Pitts
Consultant

Bradley H. Powers, Director
Aquaculture/Seafood Programs
National Association of Aquaculture Coordinators

Robert R. Stickney, Professor
School of Fisheries
University of Washington

Hugh Warren, III, Executive Vice President
Catfish Farmers of America

[▲]Biologically Based Technologies for Pest Control

Katherine Reichelderfer Smith
[*Chairperson*]
Director, Policy Studies Program
Henry A. Wallace Institute for Alternative Agriculture

Paul A. Backman, Professor and Director
Biological Control Institute
Department of Plant Pathology
Auburn University

Ring T. Carde, Professor
Department of Entomology
University of Massachusetts

Willard A. Dickerson, Plant Pest Administrator
North Carolina Department of Agriculture

Roger C. Funk, Vice President of Human & Technical Resources
The Davey Tree Expert Company

Harry J. Griffiths, Chairman
Entomological Services, Inc.

Judith A. Hansen, Superintendent
Cape May County Mosquito
Extermination Commission

Dennis L. Isaacson, Program Director
Noxious Weed Control Section
Oregon Department of Agriculture

Deborah B. Jensen, Vice President
Conservation Science & Stewardship
The Nature Conservancy

Gary H. Johnston
National Park Service

Tobi L. Jones, Special Assistant
to the Director
Department of Pesticide Regulation
California Environmental Protection
Agency

Peter M. Kareiva, Professor
Department of Zoology
University of Washington

Allen E. Knutson, Associate Professor
and Extension Entomologist
Texas Agricultural Extension Service
Texas A&M University

James B. Kramer
Family Farmer

James Krysan[1]
Agricultural Research Service
U.S. Department of Agriculture

Anne E. Lindsay
Office of Pesticide Programs
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David W. Miller, Vice President for
Research & Development
EcoScience Corporation

Timothy L. Nance, Crop Consultant
Gro Technics Consulting

Thomas C. Roberts[2]
Bureau of Land Management
U.S. Department of the Interior

Sally J. Rockey
Cooperative State Research, Education,
and Extension Service
U.S. Department of Agriculture

Judith St. John[3]
Agricultural Research Service
U.S. Department of Agriculture

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University of Arkansas

Jeffrey K. Waage, Director
International Institute of Biological
Control

William S. Wallace
Animal and Plant Health
Inspection Service
U.S. Department of Agriculture

Lewis H. Waters[4]
Bureau of Land Management
U.S. Department of the Interior

Michael E. Wetzstein, Professor
Department of Agricultural and
Applied Economics
University of Georgia

David M. Whitacre, Vice President
of Development
Sandoz Agro, Inc.

[[1]Until February 1995.

[2]From April 1995.

[3]From June 1995.

[4]Until March 1995.]

[▲]Environmental Policy Tools:
A User's Guide

Richard N.L. Andrews, Professor
and Director
Environmental Management
and Policy Program
Department of Environmental
Sciences & Engineering
University of North Carolina,
Chapel Hill

Donald A. Deieso, President and CEO
Metcalf & Eddy, Inc.

E. Donald Elliott, Chairman
Environmental Law and Litigation
Yale Law School

Deeohn Ferris
Consultant

Caren Glotfelty, Deputy Director
Office of Water Management
Department of Environmental Resources
State of Pennsylvania

Joseph Goffman, Senior Attorney
Environmental Defense Fund

Danield S. Greenbaum, President
Health Effects Institute

Linda E. Greer, Senior Scientist
Natural Resources Defense Council

F. Henry Habicht, II, Senior Vice
President
Strategic/Environmental Planning
Safety-Kleen Corporation

Randy Johnson, Commissioner
Board of Hennepin County
Commissioners

Howard A. Latin, Professor of Law &
Justice
John J. Francis Scholar
Rutgers University School of Law

Lester B. Lave
James H. Higgins Professor
of Economics
Graduate School of Industrial
Administration
Carnegie-Mellon University

Pat Leyden, Deputy Executive Officer
Stationary Source Compliance
South Coast Air Quality Management
District

Steven B. Lovejoy, Professor
Department of Agricultural Economics
Purdue University

Warren R. Muir, President
Hampshire Research Associates, Inc.

Helen Petrauskas, Vice President
Environmental and Safety Engineering
Ford Motor Company

Ernest S. Rosenberg, Director
External Affairs & Compliance Support
Health, Environment, and Safety
Occidental Petroleum Corporation

[▲]Fish Passage Technologies: Protection at Hydropower Facilities

Don Kash [*Chairperson*]
John T. Hazel Sr. & Ruth D. Hazel
Chair of Public Policy
The Institute of Public Policy
George Mason University

Paul Bisulca, Assistant to the Governor
Environmental Affairs
Penobscot Indian Nation

Tom Bowes, Director of Hydro Operations
Consumers Power

Paul Brouha, Executive Director
American Fisheries Society

Glenn Cada, Aquatic Ecologist
Oak Ridge National Laboratory

Tom Carlson, Lead Scientist
Pacific Northwest Laboratory

George Eicher, President
Eicher Associates, Inc.

Christopher Estes
Statewide Instream Flow Coordinator
Alaska Department of Fish and Game

John Hall
National Marine Fisheries Serivce
[retired]

Mona Janopaul, Conservation Counsel
Trout Unlimited

Chris Katopodis, Habitat Management Engineer
Freshwater Institute

Julie Keil, Director
Hydro Licensing
Portland General Electric Company

Dale Kelley, Executive Director
Alaska Trollers Association

Jack Mattice, Senior Project Manager
Electric Power Research Institute

C. Paul Ruggles
Fisheries & Environmental Consultant

Jerry Sabattis, Program Coordinator
Hydro-Licensing
Niagara Mohawk Power Corporation

Ted Strong, Director
InterTribal Fish Commission

Ned Taft, Program Manager
Environmental Services
Alden Research Laboratory, Inc.

Gary Whelan, FERC Project Coordinator
Michigan Department of Natural Resources

Ron Wilson
Attorney

[▲]Gauging Control Technology and Regulatory Impacts in Occupational Safety and Health: An Appraisal of OSHA's Analytic Approach

John Froines [*Chairperson*]
Professor
Center for Occupational & Environmental Health
University of California

Nicholas Ashford, Professor
Center for Technology, Policy & Industrial Development
Massachusetts Institute of Technology

Robert Crandall, Senior Fellow
Economics Study Program
The Brookings Institution

Morton Corn, Professor
School of Hygiene & Public Health
The Johns Hopkins University

William Dickens, Associate Professor
Department of Economics
University of California

James Holt, Senior Economist &
Vice President for Research
Employment Policy Foundation

William Kelly, Vice President &
General Manager
Fibres Division
Carborundum Company

Karl Kronebusch, Assistant Professor
LaFollette Institute of Public Affairs
University of Wisconsin

Lester Lave, Professor
Graduate School of Industrial Administration
Carnegie-Mellon University

Thomas McGarity, Professor
School of Law
University of Texas

John Mendeloff, Professor
School of Public & International Affairs
University of Pittsburgh

Stephen Rappoport, Professor
Department of Environmental Sciences & Engineering
University of North Carolina

Susan Rose-Ackerman, Professor
School of Law
Yale University

Margaret Seminario, Director
Department of Occupational
Safety & Health
AFL-CIO

Barbara Silverstein[1], Director of Research
Department of Labor and Industries
State of Washington

James Smith
Chief Economist [*retired*]
United Steel Workers of America

[[1]Resigned December 1993 upon accepting federal service appointment.]

[▲]Nuclear Waste in the Arctic: An Analysis of Arctic and Other Regional Impacts from Soviet Nuclear Contamination

Robert P. Morgan [*Chairperson*]
Professor of Technology and
Human Affairs
Washington Universtiy
St. Louis, Missouri

John F. Ahearne, Executive Director
Sigma Xi
The Scientific Research Society

James S. Allen, Manager
Advanced Programs
Georgia Tech Research Institute

Susan Eisenhower, Director
Center for Post Soviet Studies

Murray Feshbach, Research Professor
Georgetown University

Paula Garb, Researcher
Global Peace & Conflict Studies Program
University of California

Marvin Goldman, Professor Emeritus
of Radiological Sciences
University of California

Joshua Handler, Research Coordinator
Greenpeace International

Edway R. Johnson, President and CEO
E.R. Johnson Associates, Inc.

John J. Kelley, Associate Professor
Institute of Marine Science
University of Alaska

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MacKinnon Searle Consortium, Ltd.

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Barnard College
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Lydia V. Popova, Director
Nuclear Ecology Program
Socio-Ecological Union, Moscow

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Inuit Circumpolar Conference

William L. Templeton, Senior Research
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[*Health Program*]

[▲]Effectiveness and Costs of Osteoporosis Screening and Hormone Replacement Therapy

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John A. Creighton Professor
Creighton University

Steven R. Cummings, Research Director
College of Medicine
University of California

Barbara L. Drinkwater, Research Physiologist
Pacific Medical Center

Deborah T. Gold, Assistant Professor
Duke University Medical Center

Susan L. Greenspan, Director
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Conrad C. Johnston, Director
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Shiriki K. Kumanyika, Associate Director for Epidemiology
Center for Biostatistics & Epidemiology
College of Medicine
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Commercial Development
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Donald R. Lee, Vice President
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Robert Lindsay, Chief, Internal Medicine
Helen Hayes Hospital

Betsy Love, Program Manager
Center for Metabolic Bone Disorders
Providence Medical Center

Robert Marcus, Director
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Virginia Medical Center

Lee Joseph Melton, III, Head
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Department of Health Sciences Research
Mayo Clinic

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National Dairy Council

Morris Notelovitz, President & Medical Director
Women's Medical & Diagnostic Center & the Climacteric Clinic, Inc.

William Arno Peck, Dean
Washington University School of Medicine

Diana B. Petitti, Director
Research and Evaluation
Kaiser Permanente
Southern California Permanente Medical Group

Neil M. Resnick, Chief
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Merck, Sharp & Dohme Research

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[▲]Hospital Financing in Seven Countries

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Duke Center for Demographic Studies
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Edward Neuschler, Director
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Health Insurance Association of America

Jean-Pierre Poullier, Director of
Education, Employment, and
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Organisation for Economic Cooperation
and Development
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Mark Schlesinger, Associate Professor
Department of Epidemiology and
Public Health
Yale University

[▲]Impacts of Antibiotic-Resistant
Bacteria

Gail Cassell, Professor & Chairman
Department of Microbiology
University of Alabama

Anne Bolmstrom, President
AB Biodisk

Robert J. Bywater, Director
Anti-Infective Assessment
SmithKline Beechman Animal Health

Barry Eisenstein, Vice President
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Prabhavathi B. Fernandes, Vice President
Drug Discovery
Biomolecular Screening

Winston Frederick
Infectious Disease Research
Howard University Hospital

Joshua Lederberg, Professor
The Rockefeller University

Stephen Lerner, Professor of Medicine
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Adverse Reactions to HIV Vaccine:
Medical, Ethical, and Legal Issues

Education and Technology:
Future Visions

Impact of Health Reform on Rural
Areas: Lessons from the States

Risks to Students in School

Screening and Testing Chemicals in
Commerce

PUBLIC LAW 92-484. 92d CONGRESS, H.R. 10243. OCTOBER 13, 1972.
AN ACT

[*To establish an Office of Technology Assessment for the Congress as an aid in the identification and consideration of existing and probable impacts of technological application; to amend the National Science Foundation Act of 1950; and for other purposes. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Technology Assessment Act of 1972."*]

[Findings and Declaration of Purpose]

SEC. 2 The Congress hereby finds and declares that:

[a] As technology continues to change and expand rapidly, its applications are—

1. large and growing in scale; and
2. increasingly extensive, pervasive, and critical in their impact, beneficial and adverse, on the natural and social environment.

[b] Therefore, it is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and considered in determination of public policy on existing and emerging national problems.

[c] The Congress further finds that:

1. the Federal agencies presently responsible directly to the Congress are not designed to provide the legislative branch with adequate and timely information, independently developed, relating to the potential impact of technological applications, and
2. the present mechanisms of the Congress do not and are not designed to provide the legislative branch with such information.

[d] Accordingly, it is necessary for the Congress to—

1. equip itself with new and effective means for securing competent,

unbiased information concerning the physical, biological, economic, social, and political effects of such applications; and

2. utilize this information, whenever appropriate, as one factor in the legislative assessment of matters pending before the Congress, particularly in those instances where the Federal Government may be called upon to consider support for, or management or regulation of, technological applications.

[Establishment of the Office of Technology Assessment]

SEC. 3

[a] In accordance with the findings and declaration of purpose in section 2, there is hereby created the Office of Technology Assessment [hereinafter referred to as the “Office”] which shall be within and responsible to the legislative branch of the Government.

[b] The Office shall consist of a Technology Assessment Board [hereinafter referred to as the “Board”] which shall formulate and promulgate the policies of the Office, and a Director who shall carry out such policies and administer the operations of the Office.

[c] The basic function of the Office shall be to provide early indications of the probable beneficial and adverse impacts of the applications of technology and to develop other coordinate information which may assist the Congress. In carrying out such function, the Office shall:

1. identify existing or probable impacts of technology or technological programs;

2. where possible, ascertain cause-and-effect relationships;

3. identify alternative technological methods of implementing specific programs;

4. identify alternative programs for achieving requisite goals;

5. make estimates and comparisons of the impacts of alternative methods and programs;

6. present findings of completed analyses to the appropriate legislative authorities;

7. identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described in paragraph 1 through 5 of this subsection; and

8. undertake such additional associated activities as the appropriate authorities specified under subsection [d] may direct.

[d] Assessment activities undertaken by the Office may be initiated upon the request of:

1. the chairman of any standing, special, or select committee of either House of the Congress, or of any joint committee of the Congress, acting for himself or at the request of the ranking minority member or a majority of the committee members;

2. the Board; or

3. the Director, in consultation with the Board.

[e] Assessments made by the Office, including information, surveys, studies, reports, and findings related thereto, shall be made available to the initiating committee or other appropriate committees of the Congress. In addition, any such information, surveys, studies, reports, and findings produced by the Office may be made available to the public except where—

1. to do so would violate security statutes; or

2. the Board considers it necessary or advisable to withhold such information in accordance with one or more of the numbered paragraphs in section 552[b] of title 5, United States Code.

[Technology Assessment Board]

SEC. 4

[a] The Board shall consist of thirteen members as follows:

1. six Members of the Senate, appointed by the President pro tempore of the Senate, three from the majority party and three from the minority party;

2. six Members of the House of Representatives appointed by the Speaker of the House of Representatives, three from the majority party and three from the minority party; and

3. the Director, who shall not be a voting member.

[b] Vacancies in the membership of the Board shall not affect the power of the remaining members to execute the functions of the Board and shall be filled in the same manner as in the case of the original appointment.

[c] The Board shall select a chairman and a vice chairman from among its members at the beginning of each Congress. The vice chairman shall act in the place and stead of the chairman in the absence of the chairman. The chairmanship and the vice chairmanship shall alternate between the Senate and the House of Representatives with each Congress. The chairman during each even-numbered Congress shall be selected by the Members of the House of Representatives on the Board from among their number. The vice chairman during each Congress shall be chosen in the same manner from that House of Congress other than the House of Congress of which the chairman is a Member.

[d] The Board is authorized to sit and act at such places and times during the sessions, recesses, and adjourned periods of Congress, and upon a vote of a majority of its members, to require by subpoena or

otherwise the attendance of such witnesses and the production of such books, papers, and documents, to administer such oaths and affirmations, to take such testimony, to procure such printing and binding, and to make such expenditures, as it deems advisable. The Board may make such rules respecting its organization and procedures as it deems necessary, except that no recommendation shall be reported from the Board unless a majority of the Board assent. Subpoenas may be issued over the signature of the chairman of the Board or of any voting member designated by him or by the Board, and may be served by such person or persons as may be designated by such chairman or member. The chairman of the Board or any voting member thereof may administer oaths or affirmations to witnesses.

[Director and Deputy Director]

SEC. 5

[a] The Director of the Office of Technology Assessment shall be appointed by the Board and shall serve for a term of six years unless sooner removed by the Board. He shall receive basic pay at the rate provided for level III of the Executive Schedule under section 5314 of title 5, United States Code.

[b] In addition to the powers and duties vested in him by this Act, the Director shall exercise such powers and duties as may be delegated to him by the Board.

[c] The Director may appoint with the approval of the Board, a Deputy Director who shall perform such functions as the Director may prescribe and who shall be Acting Director during the absence or incapacity of the Director or in the event of a vacancy in the office of Director. The Deputy Director shall receive basic pay

at the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code.

[d] Neither the Director nor the Deputy Director shall engage in any other business, vocation, or employment than that of serving as such Director or Deputy Director, as the case may be; nor shall the Director or Deputy Director, except with the approval of the Board, hold any office in, or act in any capacity for, any organization, agency, or institution with which the Office makes any contract or other arrangement under this Act.

[Authority of the Office]

SEC. 6

[a] The Office shall have the authority, within the limits of available appropriations, to do all things necessary to carry out the provisions of this Act, including, but without being limited to, the authority to—

1. make full use of competent personnel and organizations outside the Office, public or private, and form special ad hoc task forces or make other arrangements when appropriate;
2. enter into contracts or other arrangements as may be necessary for the conduct of the work of the Office with any agency or instrumentality of the United States, with any State, territory, or possession or any political subdivision thereof, or with any person, firm, association, corporation, or educational institution, with or without reimbursement, without performance or other bonds, and without regard to section 3709 of the Revised Statutes [41 U.S.C. 5];
3. make advance, progress, and other payments which relate to technology assessment without regard to the provisions of section 3648 of the Revised Statutes [31 U.S.C. 529];

4. accept and utilize the services of voluntary and uncompensated personnel necessary for the conduct of the work of the Office and provide transportation and subsistence as authorized by section 5703 of title 5, United States Code, for persons serving without compensation;

5. acquire by purchase, lease, loan, or gift, and hold and dispose of by sale, lease, or loan, real and personal property of all kinds necessary for or resulting from the exercise of authority granted by this Act; and

6. prescribe such rules and regulations as it deems necessary governing the operation and organization of the Office.

[b] Contractors and other parties entering into contracts and other arrangements under this section which involve costs to the Government shall maintain such books and related records as will facilitate an effective audit in such detail and in such manner as shall be prescribed by the Office, and such books and records [and related documents and papers] shall be available to the Office and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination.

[c] The Office, in carrying out the provisions of this Act, shall not, itself, operate any laboratories, pilot plants, or test facilities.

[d] The Office is authorized to secure directly from any executive department or agency information, suggestions, estimates, statistics, and technical assistance for the purpose of carrying out its functions under this Act. Each such executive department or agency shall furnish the information, suggestions, estimates, statistics, and technical assistance directly to the Office upon its request.

[e] On request of the Office, the head of any executive department or agency may detail, with or without reimbursement, any of its personnel to assist the Office in carrying out its functions under this Act.

[f] The Director shall, in accordance with such policies as the Board shall prescribe, appoint and fix the compensation of such personnel as may be necessary to carry out the provisions of this Act.

[Establishment of the Technology Assessment Advisory Council]

SEC. 7

[a] The Office shall establish a Technology Assessment Advisory Council [hereinafter referred to as the "Council"]. The Council shall be composed of the following twelve members:

1. ten members from the public, to be appointed by the Board, who shall be persons eminent in one or more fields of the physical, biological, or social sciences or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities;
2. the Comptroller General; and
3. the Director of the Congressional Research Service of the Library of Congress.

[b] The Council, upon request by the Board, shall—

1. review and make recommendations to the Board on activities undertaken by the Office or on the initiation thereof in accordance with section 3[d];
2. review and make recommendations to the Board on the findings of any assessment made by or for the Office; and
3. undertake such additional related tasks as the Board may direct.

[c] The Council, by majority vote, shall elect from its members appointed under subsection [a][1] of this section a Chairman and a Vice Chairman, who shall serve for such time and under such conditions as

the Council may prescribe. In the absence of the Chairman, or in the event of his incapacity, the Vice Chairman shall act as Chairman.

[d] The term of office of each member of the Council appointed under subsection [a][1] shall be four years except that any such member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term. No person shall be appointed a member of the Council under subsection [a][1] more than twice. Terms of the members appointed under subsection [a][1] shall be staggered so as to establish a rotating membership according to such method as the Board may devise.

[e]

1. The members of the Council other than those appointed under subsection [a][1] shall receive no pay for their services as members of the Council, but shall be allowed necessary travel expenses [or, in the alternative, mileage for use of privately owned vehicles and per diem in lieu of subsistence at not to exceed the rate prescribed in sections 5702 and 5704 of title 5, United States Code], and other necessary expenses incurred by them in the performance of duties vested in the Council, without regard to the provisions of subchapter 1 of chapter 57 and section 5731 of title 5, United States Code, and regulations promulgated thereunder.

2. The members of the Council appointed under subsection [a][1] shall receive compensation for each day engaged in the actual performance of duties vested in the Council at rates of pay not in excess of the daily equivalent of the highest rate of basic pay set forth in the General Schedule of section 5332[a] of title 5, United States Code, and in addition shall be reimbursed for travel, subsistence, and other necessary expenses in the manner provided for other members of the Council under paragraph [1] of this subsection.

[Utilization of the Library of Congress]

SEC. 8

[a] To carry out the objectives of this Act, the Librarian of Congress is authorized to make available to the Office such services and assistance of the Congressional Research Service as may be appropriate and feasible.

[b] Such services and assistance made available to the Office shall include, but not be limited to, all of the services and assistance which the Congressional Research Service is otherwise authorized to provide to the Congress.

[c] Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the Congressional Research Service under law performs for or on behalf of the Congress. The Librarian is, however, authorized to establish within the Congressional Research Service such additional divisions, groups, or other organizational entities as may be necessary to carry out the purpose of this Act.

[d] Services and assistance made available to the Office by the Congressional Research Service in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Librarian of Congress.

[Utilization of the General Accounting Office]

SEC. 9

[a] Financial and administrative services [including those related to budgeting, accounting, financial reporting, personnel, and procurement] and such other services as may be appropriate shall be provided the Office by the General Accounting Office.

[b] Such services and assistance to the Office shall include, but not be limited to, all of the services and assistance which the General Accounting Office is otherwise authorized to provide to the Congress.

[c] Nothing in this section shall alter or modify any services or responsibilities, other than those performed for the Office, which the General Accounting Office under law performs for or on behalf of the Congress.

[d] Services and assistance made available to the Office by the General Accounting Office in accordance with this section may be provided with or without reimbursement from funds of the Office, as agreed upon by the Board and the Comptroller General.

[Coordination With the National Science Foundation]

SEC. 10

[a] The Office shall maintain a continuing liaison with the National Science Foundation with respect to—

1. grants and contracts formulated or activated by the Foundation which are for purposes of technology assessment; and

2. the promotion of coordination in areas of technology assessment, and the avoidance of unnecessary duplication or overlapping of research activities in the development of technology assessment techniques and programs.

[b] Section 3[b] of the National Science Foundation Act of 1950, as amended [42 U.S.C. 1862[b]], is amended to read as follows:

"[b] The Foundation is authorized to initiate and support specific scientific activities in connection with matters relating to international cooperation, national security, and the effects of scientific applications upon society by making contracts or other arrangements [including grants, loans, and other forms of assistance]

for the conduct of such activities. When initiated or supported pursuant to requests made by any other Federal department or agency, including the Office of Technology Assessment, such activities shall be financed whenever feasible from funds transferred to the Foundation by the requesting official as provided in section 14[g], and any such activities shall be unclassified and shall be identified by the Foundation as being undertaken at the request of the appropriate official."

[Annual Report]

SEC. 11

The Office shall submit to the Congress an annual report which shall include, but not be limited to, an evaluation of technology assessment techniques and identification, insofar as may be feasible, of technological areas and programs requiring future analysis. Such report shall be submitted not later than March 15 of each year.

[Appropriations]

SEC. 12

[a] To enable the Office to carry out its powers and duties, there is hereby authorized to be appropriated to the Office, out of any money in the Treasury not otherwise appropriated, not to exceed $5,000,000 in the aggregate for the two fiscal years ending June 30, 1973, and June 30, 1974, and thereafter such sums as may be necessary.

[b] Appropriations made pursuant to the authority provided in subsection [a] shall remain available for obligation, for expenditure, or for obligation and expenditure for such period or periods as may be specified in the Act making such appropriations.

[Approved October 13, 1972.]

[Legislative History]

House Reports—

No. 92-469 [Comm. on Science and Astronautics] and

No. 92-1436 [Comm. of Conference].

Senate Report—

No. 92-1123 [Comm. on Rules and Administration].

Congressional Record, Vol. 118 [1972]—

February 8, considered and passed House.

September 14, considered and passed Senate, amended.

September 22, Senate agreed to conference report.

October 4, House agreed to conference report.

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