There are four First Principles:

First, good science. Our Federal research and development programs must be focused, peer and merit reviewed, and not duplicative; the program must solve the right problem, in the right way.

Second, fiscal accountability. We must exercise oversight to ensure that programs funded with scarce Federal dollars are managed well. We cannot tolerate the waste of money by inefficient management techniques, by government agencies, by contractors, or by Congress itself. A move to multiyear budgeting is a step in the right direction. It will work to provide more stable funding levels and give Congress the opportunity to exercise its much needed oversight responsibility.

Third, measurable results. We need to make sure that Government programs achieve their goals. We need to make sure that as we craft legislation that affects science and technology, it includes a process which allows us to gauge the program's effectiveness. As we undertake this, we must be careful to select the correct criteria. We cannot get caught up in the trap of measuring the effectiveness of a research and development program by passing judgment on individual research projects.

Fourth, the Government should be viewed as the funder of last resort. Government programs should not displace private investment, whether from corporations or venture capitalists. It is not the Federal Government's role to invest in technology that has matured enough to make it to the marketplace. When the Government provides funding for any technology investment program, it must take reasonable steps to ensure that the potential benefits derived from the program will accrue broadly and not, for instance, to a single company.

Accompanying the four First Principles, are four corollaries:

First, flow of technology. This year's Science, Technology and Space Subcommittee hearing have provided ample proof that the process of creating technology involves many steps. The present Federal research and development structure reinforces the increasingly artificial distinctions across the spectrum of research and development activities. The result is a set of discrete programs which each support a narrow phase of research and development and are not coordinated with one another. The Government should maximize its investment by encouraging the progression of a technology from the earliest stages of research up to commercialization, through funding agencies and vehicles appropriate for each stage. This creates a flow of technology, subject to merit at each stage, so that promising technology is not lost in a bureaucratic maze.

Second, excellence in the American research infrastructure. Federal investment in research and development programs must foster a close relationship between research and education. Investment in research at the university level creates more than simply world class research. It creates world class researchers as well. The Federal strategy must continue to reflect this commitment to a strong research infrastructure. We must find ways to extend the excellence of our university system to primary and secondary educational institutions.

Third, commitment to a broad range of research initiatives. An increasingly common theme has emerged from the Science, Technology and Space Subcommittee hearings this year: Revolutionary innovation is taking place at the overlap of research disciplines. We must continue to encourage this by providing opportunities for interdisciplinary projects and fostering collaboration across fields of research.

Fourth, partnerships among industry, universities, and Federal laboratories. Each has special talents and abilities that complement the other. Our Federal dollar is wisely spent facilitating the creation of partnerships, creating a whole that is greater than the sum of its parts.

The principles and corollaries that I have outlined form a framework that can be used to guide the creation of new, federally funded research and development programs and to validate existing ones. An objective framework derived from First Principles is a powerful method to elevate the debate on technology initiatives. It increases our ability to focus on the important issues, and decreases the likelihood that we will get sidetracked on politically charged technicalities. It also serves as a mechanism to ensure that Federal research and development programs are consistent and effective.

The four principles and four corollaries serve different purposes: The First Principles help us evaluate an implementation of a research and development program.

First, good science.

Second, fiscal accountability.

Third, measurable results.

Fourth, Government as funder of last resort.

The corollaries help us establish a consistent set of national goals—the vision of an overall research and development program.

First, creation of a flow of technology.

Second, excellence in the American research infrastructure.

Third, commitment to a broad range of research initiatives.

Fourth, partnerships among industry, university, and federal laboratories.

Mr. President, Congress continues to face a monumental budgetary challenge. Despite our accomplishment this year of passing the first balanced budget since 1969, we have yet to face the most daunting challenge: bringing entitlements under control at a time of huge demographic shifts toward increasing numbers of recipients. Even as we work toward this difficult goal, we cannot lose sight of the near-term management challenge in making the most of our limited discretionary funds. The Federal investment in research and development has paid handsome dividends in raising our standard of living. It is an investment we cannot afford to pass up.●

ARAB-AMERICAN AND CHALDEAN COUNCIL 1997 ANNUAL CIVIC AND HUMANITARIAN AWARDS BANQUET

● Mr. ABRAHAM. Mr. President, I rise today to acknowledge an important event which is taking place in the State of Michigan. On this day, December 5, 1997, many have gathered to celebrate the Arab-American and Chaldean Council [ACC] Annual Civic and Humanitarian Awards Banquet. Each of the individuals in attendance deserve special recognition for their commitment and steadfast support of the Arab-American and Chaldean communities.

I am pleased to recognize the recipients of this evening's awards: Mr. Brian Connolly and Ms. Beverly B. Smith, Civic and Humanitarian, Mr. John Almstadt, 1997 Leadership Award, Senator Dick Posthumus, 1997 State Leadership Award, and Ms. Elham Jabiru-Shayota, Mr. Andrew Ansara, and Mr. George Ansara Entrepreneurs of the Year. Each of these recipients should take great pride in receiving these distinguished awards.

While it is important to pay special tribute to the awardees, it is also essential to honor the citizens of the Arab-American and Chaldean communities. Each of you that has worked to strengthen cultural understanding have contributed greatly to the State of Michigan. For the past 18 years, the ACC has provided tireless support and steadfast dedication to Arabic- and Chaldean-speaking immigrants and refugees. During the past fiscal year, 1996–97, ACC was able to serve over 18,000 clients and cases. This coming year will be an exciting one for ACC. Six of ACC's outreach locations will be consolidated into one location at the Woodward Avenue and Seven Mild Road Area, allowing ACC to serve an even greater client base. Through job placement programs and mental health services, ACC has significantly enhanced the lives of many in our community. As you gather this evening to honor these awardees, I challenge each of you to continue to be active participants in your respective communities.

To the Arab-American and Chaldean-American communities and to the awardees, I send my sincere best wishes. May the spirit of this evening continue to inspire each of you.●

1997 HUMAN RELATIONS AWARD OF THE GREATER DETROIT INTERFAITH ROUND TABLE OF THE NATIONAL CONFERENCE

• Mr. LEVIN. Mr. President, I rise today to honor Alex Trotman and Mandell ''Bill'' Berman who will receive the 1997 Human Relations Award of the Greater Detroit Interfaith Round Table of the National Conference, on November 18, 1997. This important awards ceremony will take place during the Greater Detroit Interfaith Round Table's 50th Annual Dinner.

The Greater Detroit Interfaith Round Table was established in 1940 as the local chapter of the National Conference of Christians and Jews. The Detroit community quickly supported the NCCJ's goal of providing a forum where people of varied faiths could explore and celebrate their differences. During the last 57 years, the Interfaith Round Table has promoted such understanding through its many popular programs and fora.

The Human Relations Award recognizes leaders in the community ''for moving us forward in building a city, State, and Nation committed to the ideals of dignity, justice, and respect for all people.'' This year's recipients have displayed a strong personal commitment to promoting understanding among all races, religions, and cultures. Their great efforts are an inspiration to us all.

Alex Trotman is chairman of the board of directors and chief executive officer of Ford Motor Co. He was born in Middlesex, England, and came to the United States in 1969. Since coming to America, Mr. Trotman has used his unique vantage point to promote understanding among different people. He is currently a member of several organizations which promote international exchange, such as the Chase International Advisory Committee, the America-China Society, and the United States-Japan Business Council.

Bill Berman is a Detroit native and, like me, a product of its public school system. After a distinguished career in industry, Mr. Berman is currently a member of the board of the Dreyfus Corp. He has also been closely involved with supporting his community. He has served in leadership positions of the Skillman Foundation, JESNA, and its Berman Research and Evaluation Center, Detroit Jewish Welfare Federation, and the United Way.

Mr. President, I know my Senate colleagues join me in congratulating Alex Trotman and Mandell ''Bill'' Berman on receiving the 1997 Human Relations Award of the Greater Detroit Interfaith Round Table.•

THE CURRENT CRISIS INVOLVING IRAQ

• Mr. McCAIN. Mr. President, last week I submitted a statement for the record discussing my views on the situation in Iraq and the need for the United States to remain resolute in its dealings with the regime of Saddam Hussein.

Today, I would like to submit a paper on the subject written by Tony Cordesman, currently at the Center for Strategic and International Studies and formerly a member of my staff. Tony's paper offers an excellent summation of Iraqi intentions and capabilities as well as providing expert analysis of what is at stake for the United States and its interests in the Middle East as a result of this most recent crisis involving Iraq and the United Nations Special Commission.

I urge all of my colleagues in the Senate and the House to read this paper carefully. It offers insightful commentary on the potential ramifications of various policy alternatives that the United States and the United Nations may select in responding to Saddam's latest provocation. Toward that end, I respectfully request that Dr. Cordesman's paper be included in the RECORD, as well as this statement.

The paper follows:

WHAT IS AT STAKE IN THE CRISIS WITH IRAQ—THE THREAT OF IRAQI WEAPONS OF MASS DESTRUCTION AND U.S. MILITARY OPTIONS

(By Anthony H. Cordesman)

Iraq's process of proliferation is so complex that it is sometimes difficult to determine just how serious the violations that UNSCOM has discovered really are, or to put these violations in perspective relative to what UNSCOM has already accomplished. Attachment One provides a short summary of UNSCOM's most recent conclusions relating to Iraq's efforts to cheat the UN. Attachment Two describes Iraq programs before and during the Gulf War, what UNSCOM has accomplished in the seven years that have followed, and what remains unknown.

IRAQ'S CLANDESTINE BREAKOUT CAPABILITY

These attachments show that the issue is not one of sweeping up the details, but rather one of dealing with massive violations, some of which occurred as recently as August, 1997. At the same time, it is important to understand that many UNSCOM and US experts believe Iran has started completely separate new programs since the Gulf War, which are so secret and dispersed that they are almost impossible to detect. These programs may be largely at the research and development level, but they may give Iraq a major ''break out'' capability to rapidly produce and redeploy weapons of mass destruction the moment that sanctions are lifted.

Major possibilities that could be accomplished in small research facilities and which could be rapidly moved or dispersed include:

UNSCOM and the IAEA's success have created new priorities for Iraqi proliferation. The UN's success in destroying the large facilities Iraq needs to produce fissile materials already may well have led Iraq to focus on covert cell-like activities to manufacture highly lethal biological weapons as a substitute for nuclear weapons.

All of the biological agents Iraq had at the time of the Gulf War seem to have been ''wet'' agents with limited storage life and limited operational lethality. Iraq may have clandestinely carried out all of the research necessarily to develop a production capability for dry, storage micro-power weapons which would be far easier to clandestinely stockpile, and have much more operational lethality.

Iraq did not have advanced binary chemical weapons and most of its chemical weapons used unstable ingredients. Iraq has illegally imported specialized glassware since the Gulf War, and may well have developed advanced binary weapons and tested them in small numbers. It may be able to use a wider range of precursors and have developed plans to produce precursors in Iraq. It may have improved its technology for the production of VX gas.

Iraq is likely to covertly exploit Western analyses and critiques of its pre-war proliferation efforts to correct many of the problems in the organization of its proliferation efforts, its weapons design, and its organization for their use.

Iraq bombs and warheads were relatively crude designs which did not store chemical and biological agents well and which did a poor job of dispersing them. Fusing and detonation systems did a poor job of ensuring detonation at the right height and Iraq made little use of remote sensors and weather models for long-range targeting and strike planning. Iraq could clandestinely design and test greatly improve shells, bombs, and warheads. The key tests could be conducted using towers, simulated agents, and even indoors. Improved targeting, weather sensors, and other aids to strike planning are dual-use or civil technologies that are not controlled by UNSCOM. The net impact would be weapons that could be 5–10 times more effective than the relatively crude designs Iraq had rushed into service under the pressure of the Iran-Iraq War.

UNSCOM and the IAEA's success give Iraq an equally high priority to explore ways of obtaining fissile material from the FSU or other potential supplier country and prepare for a major purchase effort the moment sanctions and inspections are lifted and Iraq has the hard currency to buy its way into the nuclear club. Iraq could probably clandestinely assemble all of the components of a large nuclear device except the fissile material, hoping to find some illegal source of such material.

The components for cruise missiles are becoming steadily more available on the commercial market, and Iraq has every incentive to create a covert program to examine the possibility of manufacturing or assembling cruise missiles in Iraq.

UN inspections and sanctions may also drive Iraq to adopt new delivery methods ranging from clandestine delivery and the use of proxies to sheltered launch-on-warning capabilities designed to counter the U.S. advantage in airpower.

Iraq can legally maintain and test missiles with ranges up to 150 kilometers. This allows for exoatmospheric reentry testing and some testing of improved guidance systems. Computer simulation, wind tunnel models, and production engineering tests can all be carried out clandestinely under the present inspection regime. It is possible that Iraq could develop dummy or operational high explosive warheads with shapes and weight distribution of a kind that would allow it to test concepts for improving its warheads for weapons of mass destruction. The testing of improved bombs using simulated agents would be almost impossible to detect as would the testing of improved spray systems for biological warfare.

Iraq has had half a decade in which to improve its decoys, dispersal concepts, dedicated command and control links, targeting methods, and strike plans. This kind of passive warfare planning is impossible to forbid and monitor, but ultimately is as important and lethal as any improvement in hardware.

There is no evidence that Iraq made an effort to develop specialized chemical and biological devices for covert operations, proxy