KEYNOTE ADDRESS TO THE
NATIONAL CONFERENCE ON THE ADVANCEMENT OF RESEARCH
THE GREENBRIER, WHITE SULPHUR SPRINGS, WEST VIRGINIA

BY ELMER B. STAATS
COMPTROLLER GENERAL OF THE UNITED STATES

SEPTEMBER 15, 1975

IMPROVING THE MOBILIZATION OF SCIENTIFIC AND TECHNOLOGICAL RESOURCES

Mr. Chairman, ladies and gentlemen, I am honored by the privilege of addressing this conference on a most important and timely subject of national and international concern.

I have thought a great deal about what I might say to provide perspective and help sharpen the focus for the panel discussions that will follow during the next few days, recognizing that you represent our top leadership in this field from Government, industry, and academia. I understand that the panelists are charged with the responsibility for innovating in the design of R&D organizations. Rather than deal with this subject directly, therefore, I shall attempt to provide some relevant background and perspective for the conference deliberations.

One option I considered was to review historical developments to provide a framework for examining the issues. This would be particularly tempting to me because I have been involved for so many years in this unfolding drama that I am personally acquainted with many of the leading players and familiar with most of the key episodes and organizational changes that have occurred since World War II.

Another alternative, and the one I have chosen, is to attempt a holistic view of today's scenario; that is the patterns, problems, symptoms, and attitudes demanding special attention. The main theme of my talk is two-fold. First, I shall attempt to identify major needs and opportunities for innovative thinking in policy formulation, organizational design, and institutional relationships involving all components of our science and technology community, in the context of today's international and domestic situation. Second, I would like to share with you some thoughts about attitudes which tend to inhibit or constrain creative thinking, institutional change, and commitment to a unified national purpose.

In choosing this approach, I assume that most, if not all of you, are familiar with the development of our national science and technology enterprise since World War II. No doubt you also are familiar with the plethora of recent literature reflecting the view that all is not as well as it should be in this arena. Among the expressed concerns are deterioration in our international technological leadership, lagging productivity in both public and private sectors, imbalance in the supply of and demand for scientists and engineers, and financial problems of academic institutions--just to name a few.

As a backdrop for considering my main thesis, I should like to briefly review the history of modern football, which in some respects is analogous to the development of our science

and technology enterprise, at least from the view point of lessons learned about how the game is played. Fifty years ago the fundamentals of the game were blocking, tackling, and ball handling. This is still true today. One team of eleven played the entire game, both offense and defense. Substitutions were rare unless a player was injured. It was also a running game until Knute Rockne first dramatized the power of the forward pass in that famous Norte Dame victory over Army. Since then, a number of innovations have resulted in a much more open and exciting game. Most notable was the T-formation, with later variations. Then came the two-platoon system. Now there are individual specialists for almost every facet of the game, sometimes including the player who holds the ball for the place kicker. The modern game, especially in the professional leagues, has become extremely sophisticated in its requirements for team unity and strategy, with every individual role adapted and committed to the team effort for one objective, namely to obtain and retain possession of the ball and move it forward until the goal is reached. Not only individual skills but attitudes and team spirit are vital to success.

Now, how does this analogy relate to my message today? The fundamentals of science and technology are research, development, and application. Our team is comprised of individual stars, superstars, and specialty units. The individual stars, of

course, are scientists, engineers, other technological artisans, administrators, and political leaders. Our specialty units include Federal policy analysts and advisors, congressional committees, mission agencies, academic institutions, nonprofit organizations, Federal contract research centers, industrial firms, State and local governments, and both Government and private laboratories. The quarterback is the President. Sometimes he calls the signals on his own volition. At other times he is influenced by coaches on the sidelines and constrained by the owners who in this case are represented by the Congress.

In the face of vastly increased complexity in the role of science and technology in relation to our national and international socioeconomic goals, we need to marshall our resources into the best possible team effort to achieve national objectives while continuing to perfect the specialty roles of each element of the infrastructure. We need a coherent national strategy and a unity of purpose, spirit, and commitment that transcends the parochial preferences of each player. As in football, every individual player and specialty unit must function effectively with discipline, coordination, and timing in accordance with the total team strategy.

There is a caveat, however, in pushing the football analogy too far, especially with respect to our international posture. Our objective is not to provide spectator sport for national or

international acclaim, nor public entertainment for profit, nor a win/lose adversary posture toward our world neighbors. Rather, on both the domestic and international scenes, our objectives are to contribute to economic and cultural development, alleviation of want and suffering, and the promotion of stable peace and good will among all mankind.

Today's Scenario

Now let me identify some of the enlarged dimensions and characteristics of today's scenario from which key issues emerge that appear worthy of special consideration by this conference. Of paramount importance is the increasing world interdependence, especially in energy, food, and critical minerals; and the role of science and technology in this global situation. Intimately related to this are our shifting national goals and priorities from the arms race and superiority in space technology to urgent socioeconomic problems. Changing needs and priorities have raised an increasing number of vital issues that transcend individual Government agencies and private sector elements in our science and technology enterprise.

Never before has it been so essential to integrate science and technology with socioeconomic considerations at all levels of policy making and throughout the broad spectrum of organizational elements comprising the establishment. The importance of futurity in present day decisions interrelating scientific, technological, economic, sociological, political, and institutional factors cannot be over estimated. The dominance of the

Federal Government and its impact on the elements comprising the infrastructure is greater than ever before. Finally, both the national and international situations are changing so rapidly that positive action is urgent.

The theme of this conference, I believe, must be viewed in the context of our national concerns, and the needs and opportunities for innovation in policy formulation, strategy development, and improvement of institutional relationships throughout the entire enterprise. These needs and opportunities range from

--restructuring the central focus, oversight, and policy advisory apparatus for science and technology in the White House, to

--developing improved technology application and delivery systems to enhance the quality and efficiency of public services.

I also believe there is a need to reexamine and improve certain facets of our pluralistic system for Federal sponsorship of R&D.

While assuring the continued viability of our colleges and universities, and the continuity and stability of basic research in both physical and social sciences, we need to establish improved means for matching our graduate education and training programs to the future job market.

Another question of major concern is how can nationwide scientific and technological resources be better mobilized for essential major commercial developments which involve risks, time scale, and capital investment beyond the capabilities of the private sector alone.

Another issue is to determine when and how the Federal Government can stimulate technology innovation to improve productivity in both the public and private sectors.

Corporate Role of the Federal Government

Beginning on the Federal scene, all of you are undoubtedly aware of the current interest by both the Congress and the executive in restructuring the White House science advisory apparatus. The latest proposal under consideration is the modified Teague-Mosher bill, H.R. 9058. Title I of this bill delineates a comprehensive policy for science and technology, and Title II reestablishes a policy advisory unit in the White House much like the former Office of Science and Technology.

I am pleased that Title II deals not only with the advisory role to the President but also with executive branch oversight, evaluation, and coordination of Government-wide R&D.

In connection with the 1974 and 1975 House Committee hearings on Federal Policy, Plans, and Organization for Science and Technology, I expressed the view that, to supplement the present pluralistic approach, some form of central focus and oversight is needed for evaluation, coordination, budget priority determinations, and overall national policy. This is especially true for R&D efforts that cut across agency lines and issues involving science and technology that transcend agency responsibilities or have international implications.

Federal R&D activities directed toward providing solutions to national domestic problems are dispersed among numerous

agencies. The Director of the Office of Science and Technology pointed out in December 1972 that there were seven major program areas of effort--energy, transportation, health, natural resources, education, social systems, and science and technology base--that accounted for about 95 percent of Federal R&D expenditures outside of defense and space, and that each one of these efforts involved four or more major departments and agencies. It is also apparent that the total Federal R&D budget, as presented in the Office of Management and Budget's Special Analyses, is still an after-the-fact summary which does not adequately assess the overall status of science and technology nor the strategy in relation to national goals.

I believe that each Federal agency should develop a strategy and priorities for the support and use of R&D to fulfill its mission objectives. In my view, however, this alone is inadequate. The number and importance of crosscutting related and overlapping areas of interest of individual agencies make a central focus not only desirable but necessary to insure mutually compatible and coherent R&D programs. In my testimony, I cited instances in which this focus is needed. For example, energy source development and conservation objectives are constrained by enviromental protection requirements. Public transportation, crime prevention, law enforcement, and housing and urban development are all mutually interactive and to differing degrees constrained by energy and material shortages as well as environmental concerns.

There are other issues involving science and technology that transcend individual Government agencies. Among them are the impact of science and technology on the economy and the environment, the Federal role in assisting State and local governments, Federal intervention in and/or assistance to high technology industry to protect our industrial base against foreign competition, and Federal assistance to graduate education.

In coping with problems such as the energy crisis, the shortage of critical minerals, and the inadequate world food supply, it is clear that central oversight needs to be established. National policy issues are also involved in striking an appropriate balance among protecting technological advantages for military preparedness, fostering international sharing of technological resources to help developing nations, and strengthening negotiations for world peace.

In my testimony, I also endorsed the proposal for an annual report on the status of science to be prepared for the President and the Congress, and recommended that continued analysis, development, and testing of science indicators along the lines initiated in the 1972 annual report of the National Science Board should help to sharpen our focus and ability to assess our national and international posture in science and technology. I have been advised that an updated report on science indicators is expected to be released sometime this fall.

There is wide diversity of opinion concerning how this central focus and advisory function should be structured and, hence, an opportunity for innovative design. I believe, however, that there is general consensus of the need for restructuring this apparatus.

Title III of the Teague-Mosher bill proposes to establish a committee to comprehensively study the total context of the Federal science and technology effort and submit a report on its findings, conclusions, and recommendations to the Director of the Office of Science and Technology Policy and, subsequently, to the President and the Congress. I believe it is both necessary and timely for such a comprehensive review of our total national enterprise in science and technology.

Although the survey committee concept, as set forth in Title III, is workable, I think greater benefits would result if the Congress were to establish as a study mechanism an independent body modeled after the Commission on Government Procurement or the Commission on Federal Paperwork, both of which were established by statute. Such a commission could be bipartisan with representatives of the legislative and executive branches, as well as other sectors involved in science and technology, such as industry, State and local governments, and the academic community.

Such a commission would be charged with essentially the same duties and functions now stated in the bill, except that

its report would be addressed to the Congress. The executive branch could then be required by statute to respond to any recommendations included in the report, and appropriate follow-up action could be monitored. This would provide greater assurance that the study would be truly independent and that resulting recommendations would have a broader base of support and that they would be fully considered.

In submitting comments on the bill, I have recommended the establishment of such a statutory commission.

We all know that, except for a few large corporations and philanthropic foundations, the private sector generally does not support basic research and education unless it can identify a direct, timely, and adequate return on its investment. As a portion of the Federal Government's corporate responsibility, therefore, it must continue to provide major support for basic research and graduate education in both physical and social sciences and the engineering disciplines. Without adequate support of this kind, we run the risk of losing the benefits from our international leadership in science and technology. Although no one can tell whether, when, and how payoffs may come from basic and long-range exploratory applied research, the Federal Government must assure adequate prospecting to preserve the springs of scientific discovery and, thus, provide a reservoir of knowledge from which the technology base is derived. This type of research cannot be directed nor evaluated in the same sense as mission-oriented R&D.

I do not believe there is any "best" formula for Federal support of basic research--a percentage of the total R&D budget, a percentage of the gross national product, or the consensus of experts in various disciplines. However, I believe that a rationale can and should be developed and criteria established to assure continuity and stability of federally sponsored efforts. In other words, I believe we should have a long-term investment plan.

As we all know, a major portion of basic research is performed in academic institutions and, hence, there has been close correlation between research and graduate education. Recently institutional funds for academia have been drying up and fewer fellowships are available. Of course this financial squeeze is worsened by cost inflation. This results in higher overhead costs and less research for each dollar invested; that is, lower productivity; and also tends to attract graduate students into the fields in which financial support of research and graduate student assistantships is least contrained. Thus, graduate training programs are becoming captive to currently available research support and are not necessarily consonant with the best educational plan for developing professional talents to meet the future job market.

This situation and other factors, such as the high capital cost for research facilities in some areas of investigation and the need for longer term stability and maintaining a "critical

mass" level of effort with opportunities for fulltime career researchers, has caused the question to be raised in some quarters as to whether there should be some attempt to decouple research and graduate education. Perhaps at least an evaluation should be made to determine what needs to be done to assure the matching of graduate training to the future job market as well as continuity and effectiveness of essential research programs.

Two of the largest supporters of graduate research centers in the physical sciences and engineering have been the Department of Defense and NASA. The reduction in academic support by these two agencies is creating hardships in a number of universities which organized and staffed at relatively high levels before the economy pinch. Meanwhile other agencies, such as ERDA, have increasing budgets. Here is a challenge to academic institutions to adapt their graduate research programs to the changing national priorities without compromising the quality of their academic standards. With the increasing emphasis on the relationship of science and technology to socioeconomic needs and opportunities, academic institutions may need to initiate more multidisciplinary research efforts that cut across traditional department disciplines. I understand that some universities are experimenting along these lines.

Limitations of the Pluralistic System

In addition to restructuring the central focus, oversight, and advisory functions for science and technology in the White

House, there is, I believe, a need to reexamine some facets of our pluralistic system for support of R&D. The essence of the pluralistic system, as I perceive it, is for each Federal agency to selectively sponsor both basic and applied research and the development of technology to meet its mission requirements, supplemented by the National Science Foundation supporting basic research and selected applied research in the areas and disciplines not otherwise adequately covered by mission agencies. An important corollary is the "bottoms-up" approach which depends heavily upon consideration of ideas and proposals initiated by individual scientists and research institutions, rather than a directed "czaristic" approach from one central authority. It is generally believed that this has consistently enabled the United States to maintain a strong scientific leadership and competitive technological position, in contrast to the shortcomings of some nations in which the governments have chosen to direct and control both government-sponsored and industrial R&D.

Notwithstanding our time-honored faith in this approach, there are some inherent imperfections in our pluralistic system for supporting R&D, such as permissiveness for overlapping and duplication, compounded by overlapping and sometimes conflicting mission objectives of various agencies. I have previously cited examples of these crosscutting issues to illustrate the need for stronger central oversight and coordination. Also, the pressures of inflation and budgetary constraints tend to

squeeze the allocations for basic and longer range applied research for which each agency's return on investment is uncertain in both results and time.

In addition, an attitude attributed to the Mansfield Amendment to defense appropriations several years ago is reputed to constrain Federal agencies from sponsoring certain basic research. Although the Mansfield Amendment precluded the use of defense appropriations to support research or studies unrelated to the defense mission, it did not apply to civil agencies nor forbid the sharing of defense laboratory resources with other agencies on a cost-reimbursement basis. Such sharing is both permissible and desirable, provided it does not interfere with work for the defense mission, involves only a small percentage of a laboratory's capability, does not result in expanding a DOD facility or retaining one which otherwise would be discontinued or possibly reassigned to a nondefense agency, nor compete with equivalent resources available in the private sector. The "Mansfield syndrome" probably arises at least in part from a misunderstanding of the intent of this legislation by some officials of both DOD and civil agencies.

For continued success of the pluralistic approach, each agency sponsoring R&D should be encouraged to strive for excellence in management and administration to cope with the ever increasing sophistication of problems involving scientific and

technological components, and to foster interagency cooperation and sharing of technological resources to the maximum extent feasible.

These limitations in the pluralistic support of R&D provide some justification for considering a Federal department of science and technology comprised of several broad-gauge science and technology laboratories to sustain an adequate multidisciplinary corporate level of R&D in technology base activities from which mission agencies could draw as a reservoir. However, this would require that adequate means be established for coupling the R&D planning to mission agency needs as well as facilitating transfer of research results to potential users.

Mobilization for Major Commercial Ventures

Let us now consider another major responsibility of the Federal Government. This is the mobilization of combined nationwide scientific and technological resources required to develop major commercial products needed to meet national goals. We very successfully mobilized our resources for the development of radar, nuclear weapons, and other advanced technology for World War II. Later we successfully mobilized to achieve our major goals in the space program. Although the Atomic Energy Commission, in combination with a number of industrial firms, have invested heavily in nuclear power development, there are a number of experts who debate the wisdom of the Federal Government's role in this enterprise.

The basic argument concerns the question of whether the Government should directly subsidize and manage such programs or whether instead it should provide the right climate and incentives for innovation by the private sector and insurance against the risks, with sufficient oversight to assure that the public is adequately protected from potential hazards. In energy, this problem is further compounded by the potential alternatives for energy source development, such as solar, geothermal, and coal gasification; as well as the need for emphasis on energy conservation, and in some cases the prospects for conversion from one form of fuel to another.

The energy problem certainly involves major industrial participation and the ultimate products will be commercially delivered to the public utilities and the users. Because of both the technological and market uncertainties, combined with the long time frames and magnitude of capital investment required, the Federal Government must be involved. The question is--to what extent and how? Here again is an opportunity for creative thinking about the organizational and institutional relationships.

Public Technology Delivery System

Now let us consider the application and utilization of technology in the public domain, particularly the respective partnership roles of the Federal Government, State and local governments, and the private sector in public technology

innovation to improve the quality and efficiency of public services.

Industrial productivity and the economy can be stimulated by special tax incentives, enlightened patent policy, selective relaxation of adverse Government regulations, and in many other ways. Such assistance is important when market forces are inadequate or when the existence of externalities or high risk preclude adequate private investment. But such stimuli alone generally will not motivate industry to invest its own resources to meet the technological needs of public institutions. This is especially true when the public market for technological products and services is latent, fragmented, or intractable because of political, parochial, and jurisdictional constraints. Such factors, as well as economic limitations, greatly impede the acceptance of technological innovations by public institutions.

The primary role of Federal civil agencies in technological innovation, therefore, can be one of leadership and providing incentives to others, including private industry. The Federal role involves:

--Identifying problems and potential solutions,

--Adapting existing technology or sponsoring R&D,

--Demonstrating the feasibility of technological improvements,

--Establishing performance standards,

--Removing barriers to acceptance at State and local levels,

--Employing regulatory authority, and

--Subsidizing the transition or providing special incentives until the potential for aggregated markets and economies of scale create sufficient motivation for the private sector to invest its own capital.

To be most effective, the Federal agencies must establish better working partnerships with State and local governments and the private sector. Since industrial resources are needed to produce goods for use by public institutions in improving the quality of their services, industrial contractors should be involved in the early phases of R&D, adaptive engineering, and demonstration.

Recent Studies and Experiments in Technology Innovation

Much more needs to be learned about public technology innovation, i.e., the process of not only generating technological options but also fostering the selective adaptation, transfer, and use to benefit both the economy and the quality of life. Even so, we have certainly learned enough to realize that the Federal Government's leadership role in the technology delivery system needs to be improved.

In recent years, a number of studies and experiments have been performed or sponsored by Federal agencies from which lessons are being learned about the process. Notable examples are the NASA technology utilization program; the Housing and Urban Development's "Operation Breakthrough" program; the NSF intergovernmental science, R&D assessment, and experimental R&D incentives programs; and the NBS experimental technology

incentives program. These efforts include experiments in active technology transfer methods and institutional arrangements, Federal procurement leverage, and aggregation of markets common to a number of cities. Experience gained by the Federal Laboratory Consortium for Technology Transfer is also relevant. This consortium was initiated by a group of defense laboratories but has now expanded to include representatives from other agencies, coordinated through the National Science Foundation.

Two recent reports resulting from NSF-sponsored studies on this subject are informative:

--"Barriers to Innovation in Industry: Opportunities for Public Policy Changes," by Arthur D. Little, Inc., September 1973; and

--"Technology Transfer and Utilization," by the National Academy of Engineering, February 1974.

Also available on this subject are two GAO reports:

--"Means for Increasing the Use of Defense Technology for Urgent Public Problems" (B-175132, December 1972; and

--"Technology Transfer and Innovation Can Help Cities Identify Problems and Solutions" (PSAD-75-110, August 1975).

Attitudes

Very briefly now I want to share with you some thoughts about hang-ups that tend to get in the way of creative thinking with respect to innovation in both policies and organizations. First, I shall mention some misconceptions and possibly negative attitudes that are prevalent in some segments of the Federal Government in both the executive and legislative branches. As

we all know, there can be inertia against change or a tendency to preserve the status quo--the let's-not-rock-the-boat attitude.

Also, there is a common misconception of the meaning of public accountability. In GAO we think of three types of accountability.

1. Financial accountability which implies compliance with statutory mandates and fiscal integrity,
2. Economy and efficiency which include resource utilization and stewardship, and
3. Program results or mission accomplishments.

There are those who believe that financial accountability is the most important and interpret this to mean that every Federal dollar should be tagged with a program directive, management control, and Government ownership of whatever results from its expenditure.

I believe there are situations in which a broader view of public accountability would not necessarily provide for specific direction and management by the Government nor Federal ownership of the resulting product. In such cases, the proper question to ask is whether or not Federal funds are being wisely spent in the public interest, such as stimulating or impeding innovation in the national interest. Some examples that come to mind are the Federal policies with respect to patent licensing, reimbursement of industrial contractors' costs for independent research and development, and the Federal support of basic research and graduate education.

Also, some Federal procurement policies and regulations have not been designed in the context of whether they help or impede technology innovation in the public interest. The Experimental Technology Incentives Program (ETIP) at the National Bureau of Standards is concerned with efforts to alleviate this situation. This program involves the design and conduct of experiments in close cooperation with other agencies with respect to Federal procurement policies and regulations. In the procurement area the experiments are designed to measure the impact of Government procurement leverage through special incentives for superior performance and life-cycle costing, in contrast to the traditional lowest price method of buying. ETIP's regulatory interests focus on the impact on technology innovation of various types of regulation.

A negative attitude in some Government circles is that industrial motives are suspect and profit is a dirty word. It must be recognized that a viable high technology industry, both large and small, is essential to our economy and the achievement of specific national goals. It must, therefore, be understood that industry naturally expects and Federal policies should recognize the need to earn profit and return on investment commensurate with the risks involved in each new venture. This, of course, must be balanced against public protection from monopolistic advantage and excessive profits in noncompetitive captive markets.

There are other attitudes which each of us may share to a greater or lesser extent. We tend to hold our traditional institutions in high esteem and sometimes our pride and nostalgic affection block acceptance of change. Each of us also tends to be parochial and somewhat biased with respect to the importance and needs of our own institutions and we, therefore, overstate our particular problems and concerns. In addition, we are beholden to our constituents and it is sometimes difficult to reconcile their interests with our national commitment. We are also proud and jealous of our own creativity and, hence, reluctant to adopt lessons learned from foreign nations. To achieve the fullest possible realization of our science and technology potentials we must recognize that individual interests do not necessarily add up to the national interest, and some individual preferences must be subordinated.

Conclusion

I have purposely emphasized the role of the Federal Government as the major partner because of its profound impact on the structure and motivations within and interrelations among all components of our science and technology establishment. In conclusion, however, I believe there are both needs and opportunities for innovation not only in the design of R&D organizations but also in the governing policies and institutional relationships throughout the entire structure of our science and technology enterprise. The role of each component or specialty unit needs to be reexamined with a view toward strengthening the health and vitality

of our nationwide team effort to achieve our national objectives and maintain our international leadership.

During the next few days, as you think about and discuss innovative ideas and experiments in the design of R&D organizations, I urge you to exercise unfettered imagination and vision, tempered only by the pragmatic realities of life and human behavior.

Thank you.

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

8/15 Sent copy of ltr. dtd. 7/11 from [illegible] advising that I will [illegible] and photo and should I mention anything about [illegible] and copy of speech.

August 22, 1975

7/15 Mr. Fondingsland advised that Mr. [illegible] concurring on sending and will provide by [illegible] ltr. to Susan Dotson [illegible].

Ms. Susan S. Dotson
Conference Publicity Coordinator
National Conference on the
Advancement of Research
West Virginia University
Morgantown, West Virginia 26506

Dear Ms. Dotson:

In response to your letter of August 11, we are enclosing a photograph of Mr. Staats and a copy of his biography. At this time, we are unable to provide you with a press release or copy of his speech.

We would like to add some information which is not included in his biography, but may be of interest to those attending the NCAR. Mr. Staats' interest in science policy and organization dates back to World War II. He participated in the development of the legislation which established the National Science Foundation, and later while Deputy Director of the Bureau of the Budget, helped draft and testified in support of the legislation which established the Office of Science and Technology in 1962. He has given congressional testimony many times on issues involving science and technology, and most recently, in June 1975, he testified before the House Committee on Science and Technology on Federal policy, plans and organization for science and technology (H.R. 4461 The National Science Policy and Organization Act of 1975). Mr. Staats also is a statutory member of the Technology Assessment Advisory Council to the Office of Technology Assessment.

If you would like additional information, please let me know.

Sincerely,

(SIGNED) S.V.KENDER
Sylvia Kender
Secretary to the
COMPTROLLER GENERAL

Enclosures

October 30, 1975

Mr. Philip A. Singleton
Industrial Consultant
1072 South East Street
Amherst, Massachusetts 01002

Dear Phil:

Thanks ever so much for the article from Chemical & Engineering News; I had not seen it. In fact, I thought the author did a particularly good job of summarizing the main thrust of what we were trying to say. In case that article may have been of particular interest to you, I am taking the liberty of sending you a copy of a speech which I delivered in White Sulphur Springs on the general subject of Federal interest in R&D before the National Conference on the Advancement of Research.

It was good hearing from you. I hope that you and Eleanor can find some excuse to come to Washington before too long. It would be good having a chance to get caught up to date with you and your family.

Best wishes.

Sincerely,

(Signed) Elmer

Elmer B. Staats

Enclosure (Speech dated 9/15/75)