The original documents are located in Box 32, folder "Science and Technology Policy, Office of (3)" of the James M. Cannon Files at the Gerald R. Ford Presidential Library.

THE WHITE HOUSE

WASHINGTON

March 11, 1975

MEMORANDUM FOR THE PRESIDENT

FROM : JIM CANNON

SUBJECT : Science and Technology Adviser to the President

The Vice President has rewritten and resubmitted an earlier paper proposing the creation of a Science and Technology Office in the Executive Office. (Tab A)

The Vice President suggests three options:

1. A three-member Council of Technology and Science Advisers with ~~up to~~ 20 assistants, at a cost of $2.5 - $5 million annually. Legislation would be required.

2. A single Director of Technology and Science with up to 17 assistants as needed. Initial cost would be $1 - $1.5 million annually. Legislation would be required.

3. A Science and Technology adviser with up to 3 assistants, at a cost of $100,000 - $200,000 annually. Administrative action would be required.

3. Phil Buchen recommends a fourth option: The appointment of a Scientific and Technology Liaison Adviser to the President. Administrative action would be required. (Tab B)

Paul O'Neill recommends a Science Adviser with a staff of up to three. (Tab C)

Jack Marsh recommends the Vice President's Option 3, an Adviser with up to three assistants. (Tab D)

Dr. Ted Marrs recommends Option 2. (Tab E)

Domestic Council Comment:

1. In my view the President and his Executive Office staff should have greater access to the best scientific and technological information and judgment on a wide range of subjects relating to the national interest.

2. Congress is likely to pass some kind of Science and Technology bill at this session. The House Committee on Science and Technology is committed to passage of a bill creating a Council of Advisers on Science and Technology in the Executive Office. On March 6, 1975 Representatives Teague and Mosher introduced a comprehensive bill that would --

(1) write into law a national science policy,
(2) create a Council of Advisers,
(3) establish a Cabinet level Secretary of Research and Technology Operations,
(4) form a government corporation to promote public use of research and development (Tab F)

3. Informal discussions with House Science and Technology Committee members and staff indicates that the House Committee is flexible and wants to work with your staff on passage of a bill that is acceptable to you. But it appears that any Science and Technology office smaller than ~~something~~ on the order of the Vice President's Option 2 would not be acceptable to the House Committee.

Decision:

Develop a detailed proposal to:

_____Create a three-member Council (Rockefeller Option I)

_____Create a Director of Technology (Rockefeller Option 2. Marrs recommends, with modifications)

_____Create a Science and Technology Adviser (Rockefeller Option 3. Marsh recommends)

_____Create a Science Adviser (Buchen Option 4. O'Neill recommends)

Decision:

That you authorize me to undertake, with Max Friedersdorf's staff, discussions with Representatives Teague and Mosher with the view toward modifying their bill to comport with your decision.

_____Approve

_____Disapprove

_____Hold for further consideration

D R A F T

MEMORANDUM FOR THEPRESIDENT

FROM : JIM CANNON

SUBJECT : Science and Technology Adviser to the President

The Vice President has rewritten and resubmitted an earlier paper proposing the creation of a Science and Technology Office in the Executive Office. (TabA)

The Vice President suggests three options:

1. A three-member Council of Technology and Science Advisers with up to 20 assistants, at a cost of $2.5 - $5 million annually. Legislation would be required.
2. A single Director of Technology and Science with up to 17 assistants as needed. Initial cost would be $1 - $1.5 million annually. Legislation would be required.
3. A Science and Technology adviser with up to 3 assistants, at a cost of $100,000 - $200,000 annually. Administrative action would be required.

Phil Buchen recommends a fourth option: The appointment of a Scientific and Technology Liaison Adviser to the President. Administrative action would be required (TAB B)

Paul O'Neill offers critical comments on the new paper, and recommends a Science Adviser with a staff of up to three. (Tab C)

Jack Marsh recommends the Vice President's Option 3, an Adviser with up to three assistants. (Tab D)

Dr. Ted Marrs recommends Option 2, (Tab E)

Domestic Council Comment:

1. In my view the President and his Executive Office staff and particularly the Domestic Council, should have readily available the best scientific and technological information and judgment on a wide range of subjects relating to the national interest.

2. The House Committee on Science and Technology is evidently committed to passage in this Congress of a bill creating a Council of Advisers on Science and Technology in the Executive Office. On March 6, 1975 Representatives Teague and Mosher introduced a comprehensive bill that would - a) write into law a national science policy, b) create a Council of Advisers, c) establish a Cabinet level Secretary of Research and Technology Operations, and d) form a government corporation to promote public use of research and development (Tab F).

3. Informal discussions with House Science and Technology Committee members and staff indicates they are flexible and want to work with your staff on passage of a bill that is acceptable to you. But it appears that any Science and Technology office smaller than something on the order of the Vice President's Option 2 would not be acceptable to this committee.

Decision:

Develop a detailed proposal to:

_____Create a three-member Council (Rockefeller Option 1)

_____Create a Director of Technology (Rockefeller Option 2)

_____Create a Science and Technology Adviser

_____Create a Scientific and Technology Liaison (Marsh recommendation)

_____Create a Science Adviser (Buchen Option)

_____Create a Science Adviser (O'Neill Recommendation)

Decision:

That you authorize me to undertake with Max Friedersdorf's staff, discussions with Representatives Teague and Mosher with the view of modifying their bill to comport with your decision.

THE WHITE HOUSE
WASHINGTON

March 7, 1975

JMC:

Attached are responses to the Science & Technology memo.

p

Attachments

LYNN - OMB

MARSH

due: 3/7

MAR 5 1974

THE WHITE HOUSE

WASHINGTON

March 5, 1975

MEMORANDUM FOR : DONALD RUMSFELD
JAMES LYNN
PHIL BUCHEN
JACK MARSH

FROM : JIM CANNON

Here is a copy of the revised Science and Technology memorandum from the Vice President to the President.

Would you give me your comments on this revision so that we can make a summary report to the President?

Since the President is meeting with a group of scientists on Tuesday, March 11, 1975, I would be grateful if you could give me your comments by Friday morning, March 7, 1975.

Attachment

#3

COMMITTEE ON SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20515

PRESS RELEASE

FOR RELEASE: March 6, 1975

Representative Olin E. Teague (D-Tex.), Chairman of the Committee on Science and Technology, today introduced a comprehensive bill to establish a national science policy, provide a system of scientific and technological advice in the Executive Office of the President, and create Cabinet-level support and coordination of Federal R&D activities.

The bill is co-sponsored by Representative Charles A. Mosher (R-Ohio), the Ranking Minority Member of the Committee.

The bill follows a decade of study in the science policy area by Mr. Teague's committee -- and 5 years of subcommittee and full committee focus on the specific issues of science and technology policy, science advisory mechanisms, and organization of R&D activities in the Executive Branch.

The bill's major elements are as follows: (1) a comprehensive statement of national policy for science and technology; (2) a 5-member Council of Advisers on Science and Technology, whose chairman would serve as a science adviser to the President at the option of the President -- but with special built-in discretionary powers as to use and organization vested in the President; (3) the formation of a Department of Research and Technology Operations to provide administrative coordination and supervision of Federal R&D agencies as well as to exert a staff-operation oversight and budget review of all government R&D activities; (4) the consolidation of the various Federal science information agencies into a single government corporation with compatible information handling systems and special ties to the private sector.

Mr. Teague and Mr. Mosher emphasized that the bill is not considered a final product, nor does it represent a fixed position on their part. They added that the bill is not necessarily a reflection of the views of the Committee or of its members. In inviting commentary and criticism, the bill's sponsors indicated that they hoped to discuss the entire issue of science policy advice and planning with appropriate officials in the Executive branch in the near future.

Remarks of the Hon. Olin E. Teague
in the House of Representatives
March 6, 1975

Mr. Speaker:

I am introducing today, with the cosponsorship of the ranking minority member of the Committee on Science and Technology, Mr. Mosher, a bill entitled "The National Science Policy and Organization Act of 1975."

This is the first piece of legislation dealing with fundamental science policy matters to result from the work of our Committee. It comes after five years of comprehensive investigation and study which began with eight months of subcommittee effort in 1970 and includes two series of full committee hearings in 1973 and 1974. It draws from two prior Committee reports: "Toward a Science Policy for the United States" issued by the Science, Research and Development Subcommittee in October, 1970, and "Federal Policy, Plans and Organization for Science and Technology" issued by the full Committee in July, 1974.

In summary, the bill seeks to accomplish four things.

First, it endeavors to enunciate a well-rounded national science policy. (I am not aware of any prior statutory effort of this specific character.) Second, it would establish a Council of Advisers on Science and Technology in the Executive Office of the President -- but with specially built-in discretionary powers as to use and organization vested in the President. Third, it would provide administrative unity and coordination of the essentially "R&D" agencies of government, as well as government-wide oversight and budget review of "R&D" activities, through the innovation of a staff-function, cabinet-level Secretary of Research and Technology Operations. Fourth, it would undertake to consolidate and make compatible the operations of the various Federal science information agencies by merging them into a single government corporation with special ties to the private sector.

Mr. Speaker, I do not believe it is an exaggeration to describe this legislation as a product of the most thorough Congressional scrutiny yet accorded to the focused issue of policy and planning by the Federal government as to its own role in handling science and technology.

Nonetheless, it is emphasized that the bill is by no means cast in concrete. It does not represent a fixed position on the part of its sponsors. It is not necessarily

a reflection of the views of the Committee on Science and Technology or any of its members.

But the bill is, in all respects, founded on discussion, hearings, reports and recommendations which the Committee has had placed before it by a wide variety of external parties, public and private. It seeks to present all the major, positive and reasonable suggestions dealing with the aforementioned "focused issue."

It is on this basis that the bill is offered for discussion and critique. It is our hope and expectation to undertake an additional phase of full committee hearings on this and possibly similar bills during the current session.

Mr. Speaker, having mentioned the "what" and "how" of the proposed legislation, let me turn briefly to the "why" of it.

There are many reasons which form the backdrop of this bill. They can be found at frequent intervals throughout the three volumes of Committee hearings and the two Committee reports which comprise some 2500 pages of testimony, data, findings and recommendations.

The following reasons, however, would seem to be cardinal to the issues of the day.

(1) We recognize the prominent role which applied science has played in producing the great problems of modern civilization -- the crowding and congestion, the excessive gobbling of natural resources, the dangerously shifting foundations undergirding the economy, the disruptive social and moral influences abroad in the land, and so on. Indeed, such recognition was directly responsible, and in large measure, for the concept of Technology Assessment and the formation of the legislative Office which now bears that name. We know the need to understand as best we can all the probable impacts of technologies as they develop -- good and bad.

(2) We are further aware, particularly as we look about and see the critical problems facing us with regard to food, energy, national security, economic strength and the like, that the solutions to our problems depend in some way upon the judicious use of better technology. Former Presidential science adviser Dr. Edward E. David has put it succinctly:

"Can we be sure that science and technology will find the answers? Can we be sure that solutions to our problems exist? No, but we can be sure that nothing but science and technology can find them if they do exist.

"To put it as bluntly as possible: science and technology must answer our problems. If they don't, nothing else will."

This may be overstated, but its germaneness to the needs of our era has been recognized, openly or tacitly, by every Administration of the past 45 years.

(3) We have, finally, arrived at the solid conclusion that a statutory base of some kind is essential to bring order and stability to the government's use of science and technology. For science and technology are an element of our contemporary culture as pervasive and important as economics or education or labor or environment. Like them, science and technology are interwoven into all the major missions with which government is involved. Like them, science and technology should be fabricated concretely and statutorily into the managerial and policy structure of our national government.

We have no desire to force a science advisory mechanism on the Executive Office which the President may find distasteful or foreign to his mode of operation. That is wheel-spinning. But we are inclined to believe -- having watched the handling of science and technology on an ad hoc basis by a long succession of Administrations -- that a firm science and technology policy is needed; a dependable though flexible science advisory system is needed; and a high-level, influential base for the definition and coordination of such governmental activities as are inherently devoted to or dominated by science and technology is also needed.

Our evidence strongly suggests that these are all integral parts of a single theme and should be treated together.

Mr. Speaker, a general discussion and description of the proposed legislation follows:

* * * *

Background of the Bill

The purpose of this bill is to define the national goals to be served by a national science policy, to prescribe the policy, to identify the principles and procedures to implement the policy, and to assure the maximum benefits which science and technology have to offer.

At the heart of the bill is recognition that the many scientific and technological factors shaping our nation's progress at home and abroad should systematically be taken into account in the national decision process.

It has been said that statements of goals in a national science policy cannot be fashioned because there is no consensus on them; they are too complicated and change too fast. The bill rejects this view. It proceeds on the assumption that there is more general agreement on national policy goals and principles, scientific or otherwise, than critics suggest. While the goals for science and technology which are suggested may not reflect a precise consensus, the bill is a starting point.

When the Constitution was written, one of its proposals was to "promote the Progress of Science and the useful Arts." What is proposed here is to take into account nearly two centuries of development of science and technology, the great expansion in the role of science and technology, and the need to achieve a coherent structure to direct the future

uses of science and technology for public purposes. In addition, the need to maintain a healthy scientific and technological structure in order to serve public purposes is also recognized.

There are two reasons why it is important to set goals and plan ahead in this area.

First, experience tells us that great achievements are possible through the orderly employment of science and technology for public purposes. But we also know that we can't do everything. We must have priorities. We must learn how to set first things first. It is impossible to do this unless we know what the goals are. So we must set goals and then build priorities around them.

Second, the greatest wastes of public funds usually stem from (1) programs which conflict with each other or cancel each other out, (2) programs which are terminated before they produce useful results, and (3) programs which have turned out to be unproductive and which should be terminated. A system of planning toward priority goals can help eliminate such wastes.

* * * *

It is possible to view this bill in several ways.

It can be a source of pride in that it attempts to define goals and procedures of our national effort in science and technology, and because the end product could be an important contribution to the nation's strength, health, and well-being.

It can be regarded with humility in that we still have far to go, and also because the product in its present form is the result of the combined efforts of hundreds of scientists, technologists, and concerned memebers of the public, extending back for more than a decade.

It can be viewed with respect not only because of the intellectual challenge it poses and its importance for our national well-being, but also because it is an obligation of the Congress to accept the challenge. The Constitution gives us this responsibility, and it is time we met it.

* * * *

The bill has had a much longer evolution than has been recited thus far. For example:

In 1963, a first overview hearing on government and science -- yielding six major reports -- was begun by the Committee on Science and Astronautics, now the Committee on Science and Technology.

In 1965, the Committee commissioned a study of basic research and national goals from the National Academy of Sciences.

In 1966 the Academy was asked to undertake a second report, on applied research and technological progress.

In 1967 and 1968 the Committee inaugurated four major studies and conducted the first of four extensive sets of hearings on technology assessment and technology policy-

making. During this period an extensive examination of program management by the National Science Foundation was also completed. The first of these two investigations led to the creation of the Office of Technology Assessment; the second led to a revision and streamlining of the NSF charter.

In 1969, a study of centralization of Federal science activities was undertaken and a comprehensive report issued.

In 1970-74, in addition to the Committee's own activities involving science policy as described earlier, we requested and received three special study reports on different phases of the problem from the American Association for the Advancement of Science, the Industrial Research Institute and the Science Policy Research Division of the Congressional Research Service.

Explanation of the Bill

The bill has five titles; four are substantive and one is technical. Title I is a statement of national science policy.

Nothing has been invented by the Committee for this Title. It represents a culling of the testimony of witnesses, a survey of the best literature available, and the judgment of professional people throughout the scientific and technological community. Perhaps the main issue regarding this Title is not its substance but whether or not the Congress should attempt to formulate and promulgate a national policy for science and technology. There are arguments both ways.

The bill asserts an obligation of Congress to set the policy of the Federal government which the President

will execute. Title I puts into explicit language a set of science and technology policies for congressional and public consideration. What is offered is a first try at a very large, difficult, and perhaps controversial task -- a specific delineation of national goals in science and technology plus policies and procedures for achieving them.

The bill proposes to relate these goals to the still broader goals of our society. For if we do not ensure that science and technology serve our goals as a nation, we are ignoring the lessons of history. The principle proposed here is that the expenditure of public funds must be for definable and accepted public purposes, understood and agreed.

* * * *

Title II of the bill would make available to the President a new instrument for translating into action the policies enunciated. This is a Council of Advisers on Science and Technology. The intention is to design a body whose collective wisdom will focus on ways to use the resources of science and technology to advance the programs of the President, to create a central point for policy within the Executive Office, to provide a scientific input for the deliberations of other Councils within that Office, to advise the President and the Congress of current progress and long-range plans and opportunities for the social uses of science and technology, and to evaluate the effectiveness of all Federal research and development programs.

The rationale here is not to insist upon a particular style of scientific support for the President, but to suggest a method of mobilizing expertise which will be clearly advantageous and will commend itself to the Executive Office.

A major factor, of course, is to build a coordinate relationship in science between the Executive Branch and the Congress. Committees of Congress with scientific and technological concerns need the advice and planning suggestions that the proposed Council should be able to deliver. Congress would also be in a better position to meet the scientific and technological program needs of the Executive.

Under this bill, the President could use the Chairman of the Council as a personal science adviser if he so desired. In any case, the Chairman would speak for the best public use of science and not as an advocate for science.

Most important, this Title carries a limited reorganization authority so that the President (or his successors) may revise the Advisory mechanism, unless Congress dissents, to suit his particular needs and methods.

* * * *

Title III of the proposed statute is a new variation of a concept first suggested about a century ago and periodically revived in one form or another ever since. It is the creation of a Department of Research and Technology Operations.

Unlike previous proposals for such a Department, the present scheme does not call for the transfer to it of most scientific and technological functions which support the missions of existing departments. While the new Department would stand ready to assist other departments in the conduct of their scientific activities on request, and to review the total allocation of government funds to research and development activities, it would in no way usurp the scientific decision-making and operational functions of other departments.

In the case of particular agencies whose fundamental purposes are scientific or technological, a consolidation in the new Department is proposed.

The rationale is that the need for new and often massive scientific and technological programs has been repeatedly demonstrated over the past three-quarters of a century. We have seen various new agencies created to manage such programs, sometimes loosely attached to an existing Department, and in recent years more often made a separate agency.

In the first category are the National Bureau of Standards, the Weather Bureau, and then the National Oceanic and Atmospheric Administration. In the second category are the Atomic Energy Commission, the National Science Foundation, the National Aeronautics and Space Administration, and most recently the Energy Research and Development Administration.

As time goes on, it is likely that more and more new technological enterprises will need to be added to this roster for the encouragement of technologies only dimly perceived today. The burden of the President is heavy enough without the creation of additional new agencies reporting separately to the White House. At the same time, management of large scientific enterprises within the administrative structure of existing departments can be difficult when their relationships are not obviously and closely functional. Gathering these two classes of research organizations within a single Department should result in improved administration. It should also assure informed, qualified, and uniform supervision of the proliferating "R&D" enterprises within the Executive branch -- as well as provide a place in the Executive branch for further additions of function without creating new independent agencies unless and until the need for such has been clearly established.

The agencies comprising the Department would retain their administrative structure; their missions would be unchanged; they would control their operations as they now do -- subject to the "general supervision and direction" of the Secretary. The functions of the latter far transcend this activity, particularly in having annual review and oversight responsibilities for all Federal "R&D" statutes,

administrative regulations and budgets -- plus general technology assessment responsibilities within the Executive branch.

Finally, it is here, at Cabinet level, that the role of advocacy for science and technology settles in -- where the voice for the scientific mission can be heard with consistency, clarity, relevancy, and influence. That voice does not exist today.

Admittedly, the concept of the Department is not traditional. It is more of a staff than a line operation. It has not been tried before. However, we believe it is workable and is worthy of careful consideration.

* * * *

Title IV of the proposed bill would establish one other institution to be added to the agencies gathered by Title III into the new Department. This is an institution to provide a service which has been repeatedly sought by Congress since at least 1950.

It is a plan for a government corporation to ensure the fullest possible use of the scientific and technological information generated at public expense.

The rationale of Title IV is that this information should not gather dust in files, but should be put to use as promptly and as efficiently as possible.

Moreover, the nature of the information process is such that it requires close cooperation between government and private entities. Thus the corporation is directed to establish close liaison with all pertinent elements of the private sector.

Abundant evidence has shown that information management today is resulting in wasteful neglect of available knowledge and the funding of needless research to repeat findings already in the literature. This waste is no longer tolerable.

Some students of the future predict that national strength in the next century will be determined by the skill with which the nations of the world manage their information resources. This is not hard to believe. We were fortunate, for example, in World War II that scientific information was so badly neglected in Germany that its considerable advantage in early atomic science never won credence in the upper reaches of the Nazi government. The biggest development in the glass industry in the past 50 years -- the float glass process -- was based on an American patent, but it was developed in England. The patent was ignored in this country for more than half a century. The Kroll Process for producing titanium was similarly neglected for nearly 40 years.

Sometimes we in Congress, in our efforts to promote efficiency and economy, have tended to constrain the dissemination of scientific and technological information by government agencies. But this is a clear example of penny wise, pound foolish. When we pay millions for a piece of research, we should be willing to pay a sufficient fraction of that amount to ensure that the fruits of the investment are fully utilized.

The rationale of Title IV is that scientific information management is recognized by the Congress as a vital part of the whole scientific and technological process. It must be efficiently carried out. We are abundantly supplied with many technologies for managing, sorting, retrieving, and transmitting information. But we need a channel through which to combine the best of these technologies with the human skills of judgment, discrimination, information-structuring, and up-dating. History shows that leadership in any science is quickly lost unless it is strongly supported and pursued.

* * * *

In summary. The proposed bill is intended to provide a focus for mature discussion of a national need. It has been framed with care. Advice on its content has been drawn from many well-informed sources. Nevertheless,

it is not to be considered a finished product, but rather a stepping stone toward the implementation of a genuine science policy.

Four important innovations are being offered in this legislation: a comprehensive statement of national policy for science and technology; a Council of Advisers for Science and Technology to help crystallize and effect policy at the highest levels of government; a Department of Research and Technology Operations to bring together certain related activities through a unified and efficient governmental structure; and a Science and Technology Information and Utilization Corporation to promote full, broad and efficient access by the public to the benefits of research and development.

In inviting comment and suggestions, it is hoped that the observations offered will aim to better the product, not weaken it. We have come a long way in our understanding of the problem of the public use of science and technology. We must improve our abilities to put that knowledge to work.