Impacts of the Early Cold War on the Formulation of U.S. Science Policy

Selected Memoranda of William T. Golden
October 1950 – April 1951

Edited with an Appreciation by
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Foreward by Neal Lane

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Foreword

Marquis’ *Who’s Who* refers to William T. Golden simply as “Trustee.” First and foremost, he has been and remains a trustee for science. As *Who’s Who* goes on to note, Bill has served, or is currently serving, on the boards of such institutions as the American Museum of Natural History and Mount Sinai Hospital in New York. He is a recent president of the New York Academy of Sciences, a cochair (with Joshua Lederberg) of the Carnegie Commission on Science, Technology and Government, and, of course, the perennial treasurer of the American Association for the Advancement of Science (AAAS). The long-term character of that trusteeship is demonstrated by his role in helping to shape three important U.S. government science organizations: the Atomic Energy Commission (whose functions have now been largely absorbed by the Department of Energy), the presidential science advisory system and, of course, the National Science Foundation.

On May 8, 1991, the National Science Board presented Bill with a one-of-a-kind citation for Sustained and Exemplary Contributions to Science Policy, which begins as follows:

For his seminal leadership in the articulation and implementation of national science policy, and for his contributions to preserving the historical science policy record.

As a White House consultant during the Korean conflict, he diligently advanced the concept that science advice is essential to governance at the presidential level.

As a trusted confidant to both science and government, he helped determine the substance and direction of the newly established but still undefined National Science Foundation.

As both student of, and contributor to, contemporary scientific affairs, he has provided, by means of three published volumes, a rich archive on the evolution of science policy for the benefit of future historians.

The selection of memoranda in this volume, written 45 years ago, demonstrate that Bill’s sense of trusteeship extends to preservation of the historical record. We are fortunate in that respect, since the pains he took to record his activities at that time provide fascinating insights into a period of less than a year during which the National Science Foundation was activated, the first presidential science advisory system was created, and what we now sometimes call the Cold-War science policy model was firmly established. We are also fortunate that the AAAS, by arranging to publish this selection, has made these first hand insights available to a wide audience.

Briefly: in September 1950, with the Korean War three months old and the threat of a wider war by no means discounted, Bill was summoned from New York to Washington as a special consultant to the Bureau of the Budget with the charge to prepare a report, for President Truman, on how the nation might best mobilize its scientific resources for a possible protracted military emergency. One of the notable accomplishments of his consultancy, which terminated in April 1951, was a December 18, 1950, memorandum to the president recommending the establishment of a science advisory system. Another was a memorandum which outlined, in considerable detail, a possible program for the National Science Foundation. The Bureau of the Budget transmitted that memorandum on to the National Science Board for consideration at its fourth meeting on March 8-9, 1951 -- the same meeting at which the President’s intention to nominate Alan T. Waterman as the first director of the National Science Foundation was announced. The record indicates that many of Bill’s ideas have since become an accepted part of the Foundation’s activities.
These two results by themselves would have been more than sufficient to demonstrate the prescience of Elmer Staats, Bill Carey, and others of their colleagues at the Bureau of the Budget in arranging for Bill’s consultancy. The way he chose to go about addressing his charge demonstrates the respect in which Bill was already widely held 45 years ago, as well as his sense of history: namely, he chose to conduct extensive interviews with virtually all the leading scientist-spokesmen of that era, and with leading administrators in the principal military and civilian scientific departments of the U.S. government. The insights he gained during the course of those conversations provided the basis for his memoranda on the science advisory system and on a recommended program for the National Science Foundation.

Bill recalls that he would almost invariably sit down at the end of each day with a dictaphone equipped with a recording cylinder to recount the details of the conversations he had conducted during the preceding hours -- on many occasions, two, and on some occasions three or even four memos each day. Transcriptions taken from those wax discs resulted in almost 392 pages of memoranda, bound copies of which Bill faithfully preserved and has recently deposited in five selected libraries for use by qualified scholars. Many who peruse the selection of memoranda which the AAAS has made available in this volume will no doubt want to go to one of those five libraries to consult the entire set.

The National Science Board’s May 1991 citation concludes by picking up and amplifying on the single word used by Who’s Who to characterize Bill’s career:

A man noted as much for his personal generosity as for his rigorous ethical standards, he well deserves to be recognized as this country’s foremost trustee of science.

The remarks Bill made in accepting this citation indicate that he regards trusteeship as a necessary part of citizenship, as well as the intimate link he discerns between science and the concept of opportunity, a concept he regards as central to the life of the nation he has served so well:

In ancient times, under very different circumstances, one of our ancestors answered a question with a question. As it is said in Scripture: Hashomer achee annochee? Am I my brother’s keeper? The answer for each of us fortunate ones, of course, is yes. We are indeed our brothers’ and our sisters’ keepers. That is our duty and our opportunity.

Homage, then, to science. Science is assuredly “The Endless Frontier”; and our country is indeed the land of opportunity. Let us all do all that we can to keep it that way and to make it better.

To all my friends who are here – wise, good-humored, supportive, indulgent, and loyally critical – and to those who live in my memory, I say: Thank you; I am grateful.

All of us remain grateful to Bill for that challenge and for his long service as trustee of science.

Neal Lane, Director  
National Science Foundation  
April 1995
Preface

The core and raison d'être of this volume are 27 memoranda recounting William Golden’s conversations with 18 influential scientist-statesmen between October 20, 1950, and April 11, 1951, when he served as special consultant to the Bureau of the Budget during the early months of the Korean War. These memoranda have been selected from well over 200 that Golden dictated following his interviews with more than 150 individuals. Taken together, they provide a fascinating glimpse into a critical period in the formation of U.S. science policy, as seen through the eyes of an individual who was, and has remained, centrally important in shaping that policy.

The “Appreciation” that follows this preface is intended to locate Golden’s memoranda in the context of the era, and to give some indication of the major science policy precedents that he witnessed and often helped establish during the months of his consultancy.

The 27 memoranda dictated by Golden are preceded by an October 19, 1950, memorandum to President Truman from the director of the Bureau of the Budget specifying the tasks that Golden has agreed to undertake on his behalf. The memoranda on his interviews are arranged chronologically, according to the dates of the conversations they recount. Three other pertinent items follow: a December 18, 1950, memorandum from Golden to President Truman entitled, “Mobilization of Science for War: A Scientific Adviser to the President;” his February 15, 1951, “Memorandum on Program for the National Science Foundation;” and the text of the April 19, 1951, letter from President Truman to Oliver E. Buckley, drafted by Golden, inviting Buckley to assume the chairmanship of the newly established Scientific Advisory Committee to the White House Office of Defense Mobilization. By affixing his signature to that letter the president, in effect, designated Buckley as his science adviser, while endorsing the importance of scientific advise at the highest level of government.

Editing of the memoranda has been kept to a minimum. Explanatory words or phrases inserted into the texts, such as first names and institutional affiliations of individuals not otherwise identified, have been enclosed in square brackets. Misspellings of a few names that appear to have been mistranscribed from Golden’s dictations have been corrected. A few footnotes have been used to elucidate casual references to individuals or events which, while common knowledge 45 years ago, require some explanation today. Finally, occasional passages dealing with arcane technical matters, such as the details of specific weapons systems, have been eliminated and replaced with elisions. With these exceptions, the texts are verbatim reproductions of Golden’s original dictations.

Appendices to the volume consist of: brief biographies of the individuals whose conversations with Golden are recorded in this compilation; a note on the criteria used to select memoranda for inclusion, together with a list of repositories of the full collection; a glossary of abbreviations appearing in the memoranda; comparative chronologies of events in Korea and events in U.S. science policy during the months of Golden’s consultancy; and a full list of persons consulted in the course of that consultancy, with pertinent dates.

William A. Blanpied
April 1995
Acknowledgments

Preparation of this volume would not, of course, have been possible without the help and encouragement of numerous individuals, whom I am pleased to recognize.

I am grateful to Albert H. Teich of the American Association for the Advancement of Science (AAAS), and David Z. Robinson of the Carnegie Commission on Science, Technology and Government for providing the resources required to complete this project and offering critical comments along the way.

Willis Shapley, formerly of the Bureau of the Budget and originator of the annual AAAS budget analysis exercise, Elmer Staats, retired Comptroller General of the United States, H. Guyford Stever, Science Adviser to Presidents Nixon and Ford, and Dael Wolfle, former Executive Officer of the AAAS and currently with the Graduate School of Public Affairs at the University of Washington, agreed to participate in a session on the “Impacts of the Early Cold-War on the Formulation of U.S. Science Policy” at the 19th annual AAAS Science and Technology Policy Colloquium in April 1995. My interactions with them on that and also on many previous occasions have helped shape my understanding of the evolution of science policy.

Wolfle, Donald Stokes, of Princeton University, and Pierre Perrolle, a close National Science Foundation colleague, read and made useful comments on early drafts of my “Appreciation” piece, as did Gerald Holton, of Harvard University, and William Carey, Executive Officer Emeritus of the AAAS. The latter two individuals have long served as very special mentors. Gerry helped me develop my taste for the recent history of science policy, and encouraged me to write about it. Bill insisted that I continue to follow that prescribed course, while providing me with insights into the atmosphere of the post World War II years that molded U.S. science policy, and first called my attention to the significance of the Korean period.

Special thanks are due to my friend and colleague, Jennifer Bond, an enthusiast for, and a justifiably respected contributor to, science policy. Jenni was largely responsible for convincing me that I could—and should—undertake this project. I have continued to rely on her counsel with respect to both the project’s conceptual framework and the practical details involved in its execution.

Finally, and most particularly, I am grateful to Bill Golden for the pleasure and privilege he has provided in allowing me to study the remarkable series of documents he prepared 45 years ago with such obvious care and such obvious concern for the long-term health of U.S. science in an era when short-term returns were the order of the day. Quite obviously, no amount of assistance from anyone else would have made this project possible had he not bothered to maintain such careful records. Beyond that, I acknowledge with gratitude and affection the friendship he has extended for more than 20 years.

William A. Blanpied
April 1995
A Brief Biography

William T. Golden was born in New York City in 1909, received his AB degree from the University of Pennsylvania in 1930, and pursued a course of study in business administration at Harvard University the following year. He was associated with various New York investment firms from 1931-41. During World War II, Golden served in Washington with the U.S Navy with the rank of Lt. Commander. He received Letters of Commendation with Ribbon from the Secretary of the Navy as a result of his service. Golden returned to Washington in 1946 at the request of Atomic Energy Commissioner Lewis B. Strauss, with whom he had worked during the war, to assist in organizing the newly created agency, and remained as a consultant to the AEC until 1950. In August 1950, he was induced by Charles Stauffacher, Executive Assistant Director of the Bureau of the Budget, to consider the consultancy on which this volume is based. Golden has remained deeply committed to science, and to government-science relationships. He serves (or has served) on a wide array of advisory bodies both to government agencies and non-governmental science organizations. In particular, he is treasurer-emeritus, and member of the board of directors, of the American Association for the Advancement of Science.

Golden has edited three volumes dealing with various aspects of science advice to government:

Science Advice to the President, New York, Pergamon Press, 1980; World Wide Science and Technology Advice to the Highest Levels of Government, New York: Pergamon Press, 1991; Science and Technology Advice to the President, Congress, and Judiciary, Washington, DC: American Association for the Advancement of Science, 1993. The first of these volumes contains essays by all but two presidential science advisers from the Truman through the Carter administrations (Oliver Buckley and George Kistiakowski, who was President Dwight Eisenhower’s second science adviser), and several other long-time observers of science and government. In 1988, Golden was named as co-chair (along with Joshua Lederberg, President Emeritus of Rockefeller University) of the Carnegie Commission on Science, Technology and Government. In that capacity he oversaw preparation of 20 substantial reports, (including a 1992 summary report entitled A Science and Technology Agenda for the Nation: Recommendations for the President and the Congress, which he coauthored), along with assorted occasional papers.
William T. Golden’s Chronicle of an Era:
An Appreciation

William A. Blanpied*

And then you had Korea! And everybody woke up. Everybody woke up! The world was not going to be perfect — ever.

William D. Carey

On May 10, 1950, President Harry S. Truman signed into law an Act to establish a National Science Foundation (NSF), “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes.”¹

The genesis of the Act was, of course, Vannevar Bush’s by now legendary, Science—the Endless Frontier, requested by President Franklin D. Roosevelt on November 17, 1944, and transmitted to Truman on July 5, 1945.² Gerald Holton has aptly characterized Science—the Endless Frontier as a manifesto.³ It was a treatise composed during the final, optimistic months of World War II under the guidance of a politically savvy engineer who, having organized and focused the talents of academic physicists and others in related fields to fight a war, now sought legitimacy for the novel proposition that the U.S. government should provide financial support for their self-directed, individualized peacetime pursuits! William D. Carey recalled that, “. . . the atmosphere was that we had a new world, and all would go well.”⁴ By 1950, despite five years of legislative vicissitude, the reality of a National Science Foundation, envisioned as part and parcel of that promised new world, seemed at long last assured, even though with a scope and budget considerably more modest than originally proposed.⁵

On June 25, 1950, North Korean forces crossed the 38th parallel that, five-years earlier, had been established as a temporary demarcation line between the Soviet and American occupation armies of what had been, for 40 years, an integral part of the Japanese Empire.⁶ The weakly equipped forces of the Republic of Korea were quickly routed. Within two days Seoul, the capital, had fallen.

An emergency session of the United Nation’s (UN) Security Council, convened on June 26 at the request of the United States, condemned the attack and authorized armed intervention. On June 30, 250 American troops from Japan arrived on the peninsula, with the promise of more to come. American reinforcements, joined by contingents from other UN members, delayed, but did not halt the North Korean onslaught. On July 19, President Truman called on the Congress for an emergency $11.3 billion defense appropriation, almost equal to what it had appropriated for fiscal year 1951. At the end of the month UN forces, now under the supreme command of General Douglas MacArthur, barely held on to a narrow perimeter centered on the port city of Pusan in the extreme south.

And everybody woke up!

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* William A. Blanpied, National Science Foundation. The opinions of the author are his own and do not necessarily reflect the policies of the National Science Foundation.
Pre-Korean Landscape

A good deal had intervened between completion of Science— the Endless Frontier in July 1945 and enactment of the NSF into law in May 1950, and additional, critical changes in the political landscape were to occur before Alan T. Waterman, scientific director of the Office of Naval Research, was nominated by the president as the agency’s first director 10 months later.

Failure to implement, until 1950, the centerpiece recommendation of the Bush report to create a single federal agency to support basic research conducted by an autonomous, largely university-based community, had provided a virtual invitation to other agencies to fill the void by adhering to some version of the Bush report’s vision. By May 1950, the Office of Naval Research (ONR), the Atomic Energy Commission (AEC), and the rapidly expanding National Institutes of Health (NIH) had staked out their own substantial claims to the support of both basic and applied research in the national interest. By 1950, too, competitors had emerged to challenge the claim of Science— the Endless Frontier as the cornerstone of U.S. science policy. Foremost among these was Science and Public Policy, the so-called Steelman Report of August 27, 1947, which was prepared by the President’s Scientific Review Board as government’s response to the Bush report. In addition to supporting the creation of a National Science Foundation, the report recommended that, “the President should designate a member of the White House staff for scientific liaison,” in recognition of the relevance of science policy to governance at the highest levels.

Although that recommendation was never implemented as such, by 1950 influential officials at the Bureau of the Budget (BoB) had for some time been using the tools at their disposal to try to fashion some version of a coherent science policy, Elmer Staats and William Carey among them. As Carey later recalled:

You have to think of the atmosphere. This was the post war: most of the world in ashes, the United States riding very, very high, dreaming great dreams — the Full Employment Act, United Nations arrangements, Point IV, the Marshall Plan. And then, along in parallel, there was to be a new age of science, of creativity. This was all to be part of a great strategic thrust toward the good society: high employment, unlimited opportunities, superb education, civil rights. And so we come to the institutional arrangements. And the opportunities presented themselves. The atmosphere was that we had a new world, and all would go well.

But even as Carey and his compatriots in the executive and legislative branches of government were working with leaders of the scientific community to give substance to the Bush report’s vision of an autonomous, publicly-supported scientific community pursuing research in the national interest, the Cold War was intensifying. The stage was being set for a science policy much different than what Vannevar Bush had envisioned in 1945 but which, long before 1950, he had been instrumental in helping to determine.

By 1946, Bush had returned to the principal concerns he had set aside for nine months in order to oversee, as a favor to his academic colleagues, preparation of Science— the Endless Frontier, and the anticipated quick implementation of its centerpiece recommendation. From that time until his death in 1974, he was preoccupied with trying to assure that innovative defense-related research and development (R&D) would be firmly under civilian control. Indeed, Bush’s oversight of Science— the Endless Frontier can and has been interpreted as an attempt to central control for all federally supported research, military as well as civilian, in a single, civilian-dominated agency. The failure, for five years, to create a National Science Foundation undermined that strategy; Korea was to destroy his hope, and the hope of the largely university-based scientific community he had represented, that defense-related research could
be contained within a larger context. The forthcoming marriage of science with the military, while unquestionably required during the Korean period, was accepted with considerable regret both by Bush and those who had served with him during the unquestionable World War II emergency.

The Office of Scientific Research and Development (OSRD) had achieved its spectacular results in large measure because Bush had insisted that the civilian scientists in the laboratories it managed should be allowed to work under conditions as closely akin to normal, peacetime conditions as possible. Although research projects were selected in consultation with military authorities, Bush and his senior OSRD colleagues determined which projects would be undertaken, as well as the priority for those project. When the OSRD leadership determined that sufficient research had been completed, then the project was turned over to the military — but never before such a determination had been made.

Because of the OSRD’s wartime success, there were serious suggestions that it should be maintained after the end of the war. But Bush would have none of that. Although he had agreed to preside over the massive OSRD bureaucracy because of the wartime emergency, the idea that it should be continued into the post war era conflicted with his visceral distrust of large bureaucratic organizations, whether corporate or governmental. Additionally, he felt he had to devote more time to his position as president of the Carnegie Institution of Washington. Yet a way had to be found to preserve the connections developed during the war between civilian and military science, and to prevent the concentration of R&D in the military department. To that end Bush agreed, in 1946, to chair a successor-remnant of the OSRD: the Joint Research and Development Board (JRDB) to the Departments of the Army and the Navy. With the passage of the National Security Act of 1947, the JRDB was transformed into the Research and Development Board (RDB) within the newly created Department of Defense. In 1948 Bush, who had grown weary of formal service as an advisor to government, turned over the chairmanship of that body to Karl Compton, chairman of the Corporation of the Massachusetts Institute of Technology. Compton, who was then in his 70’s, assumed what was primarily a caretaker’s role while a more active successor was sought. In 1949, William Webster, a well regarded New England utilities company executive, assumed the RDB chairmanship. The organization over which he presided was chartered to evaluate new weapons concepts and provide advice to the Secretary of Defense about promising directions for military R&D. But the RDB lacked any operational authority, and its effectiveness was limited by rivalries among the uniformed members of the three services who sat on it. By October 1950, Webster was admitting privately that a substantial reorganization of the RDB would be necessary, and making no secret of the fact that he looked forward to stepping down from his position and returning to New England the following year.

**Militarization of the Cold War**

Vannevar Bush’s prescience encompassed more than his well remembered vision of a civilian-oriented science policy grounded in federal support for basic research in the nation’s universities. In May 1940 he, along with James B. Conant and Karl Compton, the respective presidents of Harvard and MIT, and Frank Jewett, president of the National Academy of Sciences, foresaw U.S. involvement in World War II and convinced President Roosevelt to establish a National Research Defense Committee. A year later that body, under Conant’s chairmanship, was incorporated into the newly established OSRD, directed by Bush.

In 1948, following the fall of Prague and while still chair of the RDB, Bush foresaw the militarization of the Cold War that was to become an established fact of life in the latter half of 1950. Accordingly, he requested Irvin Stewart, his executive assistant during the heady OSRD days and in 1948
president of the University of West Virginia, to prepare a report for President Truman on how the scientific resources of the country might be mobilized for a full scale war, should ever occur. The centerpiece of the Stewart committee report entitled, “Plans for Mobilizing Science,” was a recommendation to reconstitute something resembling Bush’s wartime OSRD. In addition, it elevated the position of White House science liaison officer recommended by the Steelman report to the status of Scientific Advisor to the Secretary of Defense, with access to the president. The report also hinted that Stewart himself might be available to serve in that capacity.

On the day he signed the National Science Foundation Act into law the Stewart report, completed two years earlier, had yet to reach the president’s desk. Very probably, the military services were reluctant to recreate what they perceived as a rival civilian-controlled authority with direct access to the Oval Office. Additionally the United States was, as Carey recalled, still “riding very, very high.” While the Soviet Union was generally thought to be bent on undermining the West through subversion, such foreign crises as the Berlin blockade or the fall of Prague were not widely regarded as the first elements in the militarization of the Cold War. Indeed, defense appropriations had declined from fiscal years 1946 through 1950. Appropriations for fiscal year 1951 (July 1, 1950 through June 30, 1951) were $13 billion, a post war low.

By July 1950, however, the issues addressed by the Stewart report, if not its detailed recommendations, had gained considerably more urgency than they had had a bare two months earlier when the National Science Foundation Act had become law. On July 19, in a radio address to the nation, Truman asserted, in effect, that the invasion of South Korea demonstrated that communist strategy to undermine the “free world” had escalated from subversion to direct military confrontation. He called on the Congress for an immediate $11.3 billion emergency defense appropriation, both to increase the U.S. military presence in Korea and to prepare for what might well become a wider conflict, a supplementary request almost equal to what had already been appropriated. By the end of fiscal year 1951, additional supplemental appropriations had raised the total defense budget for that year to $48 billion. For fiscal year 1952, the president requested $60 billion for defense, to which the Congress acquiesced.

Funding for defense-related research and development (R&D) benefited from this astronomical rise in overall defense appropriations. Total federal R&D expenditures for fiscal year 1950 had been approximately $1.3 billion, with half that amount, or $650,000 million, for defense and half for non-defense purposes. In fiscal year 1952, total estimated federal R&D expenditures were $2 billion, with the defense-related share having doubled in two years to $1.3 billion. In view of the expectation that non-defense R&D would almost certainly remain flat during the Korean emergency, what were the prospects that the still nascent National Science Foundation would be provided with even the minimal appropriations it would need to survive, let alone begin to function?

Returning to Carey:

And then you had Korea! And everybody woke up. Everybody woke up! The world was not going to be perfect — ever. The rationalization for the pursuit of science and advanced education began to turn toward the umbrella of national security.

The Budget Bureau Commissions a Study

Frederick J. Lawton, the director of the Bureau of the Budget (BoB), and his senior staff, were mindful of their responsibility to assure that the president remained fully informed about significant policy options. In view of the outbreak of the Korean War, the resultant unanticipated reversal in the
trend in defense expenditures, and the genuine possibility of future surprises, they foresaw that as in World War II, organized science would play a pivotal role in any widening military crisis. Among the related factors they regarded as essential for the president to consider were the following:13

1. Current international military and political developments and the greatly expanded military plans and budget now under formulation.

2. The approaching activation of the National Science Foundation.

3. The report of the Committee on Plans for Mobilizing Science (Stewart Report), . . . which makes recommendations concerning the establishment of an organization to perform, in the event of another emergency, functions comparable to those of the Office of Scientific Research and Development in World War II.

4. . . . inquiries . . . from congressional and other sources on this broad subject, with particular reference to the relationships between civilian scientists and the military.

5. The emphasis which the increasing responsibilities of the U.S.A. in world affairs places on the relationship between strategic plans and scientific research and development; and the correlative magnified problems of coordination and allocation of research projects between the Services and of insuring adequacy of long-term coverage.

In late August, with UN forces still bottled up in the Pusan perimeter, Lawton’s senior staff initiated exploratory talks with William T. Golden, a New York investment banker, about the possibility that he might undertake a detailed investigation and prepare a report for the president dealing with these matters. Golden, who had served in Washington with the U.S. Navy in World War II and had returned for a time in 1946 to help organize the Atomic Energy Commission, was well positioned to undertake such an assignment: he knew, or had access to, most of the principal civilian and military officials in the government, as well as many of the most influential scientists; and he had no personal axe to grind. Accordingly, on October 20, President Truman approved a memorandum from Lawton appointing Golden as a consultant to the Bureau of the Budget, in order to:14

... advise you on these matters and to produce information which may be of maximum benefit to all concerned.

Lawton’s memorandum assured the president that Golden would pay particular attention to:

... present Governmental organizational structure for scientific research and development and the inter-relationship of such agencies as the Research and Development Board, the National Science Foundation and whatever agency becomes responsible for the functions which were performed by the OSRD in World War II.

The Golden Memoranda

Even before Truman’s approval of his consultancy, Golden was arranging meetings with key individuals to obtain information that would assist him in his study. Early in September, he traveled to Southern California where he met with Ralph Johnson, of the Hughes Aircraft Corporation and Jesse Greenstein, Professor of Astrophysics at the California Institute of Technology (“Caltech”) in Pasadena.
On his way back from the West Coast, he spent several days talking to administrative and technical staff at the Los Alamos Scientific Laboratory in New Mexico.

On October 10, 1950, Golden met with George Hines in the office of John McCormack of Massachusetts, Majority Leader of the House of Representatives. McCormack had expressed to Truman his interest in the Stewart Report. Ten days later, on the same day that his consultancy was approved, Golden had a conversation with Herman A. Spoehr, a retired biochemist who had recently been appointed as science advisor to Undersecretary of State James Webb, about Spoehr’s expectations that he would be able to establish science liaison offices in the capitals of the friendly countries of Europe to facilitate the exchange of mutually-beneficial scientific information. Four days later, on October 24, he had a two-hour meeting with Vannevar Bush, who expressed only lightly concealed bitterness about his role as an “outsider” to government, to seek his views on the conduct of his assignment from the BoB.

Beginning with the Hines meeting on October 10 and continuing through late April when he completed his consultancy, Golden dictated detailed memoranda which recounted the highlights of his conversations with more than 150 individuals in science and government. Transcripts of those dictations resulted in almost 400 pages of single-spaced memoranda. A number of these recount the perspectives on science policy and related matters in the context of reports from Korea on the part of such influential individuals as Vannevar Bush, National Academy of Sciences president Detlev W. Bronk, former commander of the U.S. occupation forces in Germany Lucius Clay, James B. Conant, Caltech president Lee DuBridge, former Manhattan Project director Leslie R. Groves, MIT president (and later presidential science adviser) James R. Killian, Deputy Secretary of Defense Robert Lovett, Institute for Advanced Studies director J. Robert Oppenheimer, Nobel Prize Laureate I. I. Rabi, soon-to-be-appointed National Science Foundation director Alan T. Waterman, and Undersecretary of State James Webb.

The dominance of physicists among the scientists with whom Golden conversed, including both academic and industrial physicists, reflects the temper and reality of the times. Although most prominent physicists returned to their universities from their secret World War II laboratories, many also became prominent advisors to government during the years before Korea, and they were to retain and expand their influence as the government became more heavily involved in defense R&D. Golden’s charge and his overriding concern during the months of his consultancy had to do with mobilizing science for war, not with advising the BoB on a balanced, broadly-based science policy. In October 1950, with a wider war not out of the question, it was only natural that he should seek advice primarily from physicists, even while noting the long-term importance of support for other disciplines, most prominently in his February 15, 1951, “Memorandum on Program for the National Science Foundation.”

Vannevar Bush was the most notable of the non-physicists interviewed by Golden. Another notable exception was Conant, a chemist who had been president of Harvard since 1933. Otherwise, most of Golden’s conversations with non-physicists such as Bronk (a biologist), Killian (an administrator), and Don K. Price (a political scientist, formerly with the BoB) were arranged because of the positions those individuals occupied rather than their disciplinary expertise. Interestingly, Bronk and Killian were among the few who appear to have stressed the desirability for the National Science Foundation to support the social sciences, Killian expressing a particular interest in the importance of connections between the social and physical sciences. Possibly because of the interest of two such prominent individuals Golden did make occasional inquiries about social scientists he might profitably seek out. But with the exception of Price, who suggested a few names, the only such meetings recorded in Golden’s memoranda were two with Bernard Brodie, Professor of International Relations at Yale (on September 28 and November 4, 1950), and one on March 7, 1951, with Donald Marquis, Professor of Psychology at the University of Michigan. With the exception of Bronk, Golden’s February 8
conversation with Alan Gregg, director of Medical Sciences at the Rockefeller Foundation, is the closest he came to any recorded meeting with a life scientist.

Nor were rising stars who had possessed their PhDs for less than a decade among those whom Golden met. Of the 18 individuals with whom his conversations are reproduced in this volume the youngest, in 1950, were James Killian and Robert Oppenheimer (both aged 46), Robert Bacher (age 45) and Kenneth Pitzer (age 36). The oldest were Theodore von Karman (69), Herman Spoehr (65), and Oliver Buckley (65). Given the temper of the times, the nature of his consultancy, and the dominance of physicists among those Golden spoke with, it is not surprising that only one conversation with a woman is recounted: Ruth Miller, a member of the President’s Materials Policy Commission who, along with her colleague, Eric Hodgins, came to see him on March 14 at their request, seemingly in an attempt to determine exactly what the Truman administration really had in mind by materials policy!

Emergence of the Cold War Model

Golden’s memoranda recount the impressions of many who were then influential and are still remembered, along with others long since forgotten, to the shifting news from Korea. They capture the mood in Washington during the critical months when the first presidential scientific advisory committee was emerging and the National Science Foundation, conceptualized five years earlier as the lynch-pin of peacetime U.S. science policy, was being activated. That mood was dominated by the expectation that a wider war was all but inevitable.

Bush’s October 24 recorded reference to the “recent war in Korea,” is curious in light of the fact that American troops were still heavily engaged in that conflict. He may have been thinking of the recent outbreak of that war. An alternative possibility is that by October, the national mood regarding a wider war had swung from deep concern to relief. On September 15, troops under the command of General MacArthur had made an amphibious landing at Inchon, the port city near Seoul. Three weeks later, having recaptured Seoul, they crossed the 38th parallel into North Korea and thereafter continued to advance to the north. Although never tacitly acknowledged, it now appeared that the objective of the war was to reunite Korea rather than simply to restore the status quo that had prevailed up to the June 25 invasion. That the Bureau of the Budget was not as sanguine as Bush in dismissing the Korean war as an accomplished fact is clear from the historical record, including the fact that Golden’s consultancy was approved approximately a month after the Inchon landing when United Nations forces were advancing rapidly toward the Chinese border. Nevertheless, on October 15, Truman and General MacArthur had an historic meeting on Wake Island, ostensibly for the purpose of discussing the final campaign in Korea.

On November 20, 1950, despite official warnings from the Pentagon, MacArthur’s forces reached the Yalu river, the dividing line between Korea and China. Six days later, Chinese “volunteers” intervened massively, and UN troops began a rapid retreat. On December 5, the same day that they abandoned the North Korean capital of Pyongyang and began their retreat south of the 38th parallel toward Seoul, Bush responded to a question from Golden by stating that he could not yet appraise the implications of events in Korea: “... maybe we should [pull out] but I don’t think we will.” Whereas in October Bush had spoken of a wider war in rather abstract terms, on December 5, according to Golden:

He said that he thought we had probably two or three years in which to arm. He does not think that Russia is ready to “roll across the plains of Germany” or launch a general attack on Western Europe and he does not think they will do so at least for two or three years.
The most revealing example of the changed perception among scientific leaders as a result of the Korean conflict are suggested by memoranda on two successive conversations with I. I. Rabi, Professor of Physics at Columbia University who had received the Nobel Laureate in Physics in 1944. Golden’s record of their November 16, 1950, meeting contains no mention of war. Rather, their conversation focused on the advisability of a presidential science advisory system and on the need for a reconstituted OSRD: “not now,” said Rabi, “don’t disturb the good work being done in universities.” In contrast, Golden’s January 5, 1951, memorandum recounts Rabi’s impressions of his recent trip to Europe:

He thinks we cannot count on the Europeans. They have no will to fight. They fear war.

. . . He says that the Europeans are very fearful of the Russians but fearful of the United States, though to a lesser degree. The latter he says is because they are afraid that “the U.S. will get them into war.”

Perhaps the most somber of the discussions recounted by Golden involved his December 14, 1950, meeting with James Bryant Conant, president of Harvard University and elected, two days earlier, as first chairman of the National Science Board, the policy-guiding body of the National Science Foundation. Conant confessed that:

. . . he preferred to do his planning on the arbitrary assumption that perhaps there will be no war for a year or more. Maybe there won’t be any war at all, but he didn’t seem very hopeful on this as he had been some three years ago when he expressed optimism that there would be no world conflict in the foreseeable future.

The impact of Korea on national policies and expectations was underscored in Golden’s account of an emergency meeting at the Bureau of the Budget on Sunday, January 5, 1951, that involved, among others, Conant, Elmer Staats, assistant director of the Bureau, and William D. Carey, who had been the principal BoB official responsible for crafting acceptable legislation to create the National Science Foundation. Golden recounted that the National Science Board (NSB) had, at its January 3 meeting, expressed strong opposition to the appointment of a scientific advisor to the president on the grounds that this would dilute its own statutory authority. Military considerations had already come to dominate U.S. science policy and prominent NSB members, at least, wanted a piece of the action. “Somehow,” Golden noted, “National Science Foundation needs a National Defense label to get appropriations and manpower (and hold off General Hershey)15 and keep its Board happy.” Conant, as National Science Board chairman, explained that although he did not agree with the position of the majority of his colleagues, he was obliged by reason of his position to explain the reasons why they opposed the appointment of a scientific adviser to the president. Thereupon Staats suggested that an advisory committee to the scientific advisor ought to be created with the director of the National Science Foundation as one of three statutory members, along with the president of the National Academy of Sciences and the director of the Research and Development Board. Conant’s impression that this might satisfy the majority of the NSB turned out to be correct.

The opening paragraph of Golden’s February 15, 1951, “Memoranda for Program for the National Science Foundation” notes that the importance of NSF to national defense was demonstrated by the fact that the yet-to-be designated NSF director would have a seat on a soon to be established Scientific Advisory Committee to the White House Director of Defense Mobilization. However, neither the military situation in Korea nor the increasingly rancorous political atmosphere occasioned by General MacArthur’s vocal opposition to the Truman administration’s policy of containing the conflict by avoiding any attack on China are mentioned in subsequent memoranda. By early January, Golden had already forwarded a memorandum to President Truman recommending the appointment of a scientific adviser, one of whose principal responsibilities would be to lay the groundwork for the establishment of a
new OSRD-like organization that could be activated in the event of a full scale war. Many of the remaining memoranda recount attempts to implement that recommendation.

In late January, UN troops under General Matthew Ridgeway, the newly appointed field commander, once again began to advance northward toward Seoul and the 38th parallel. The crisis atmosphere that had followed the Chinese intervention two months earlier began to abate. However, the militarization of the Cold War - and of U.S. science policy - was already an accomplished, irreversible fact, as the implementation of the scientific adviser proposal and the fate of the still largely nascent National Science Foundation were to indicate.

The domestic fall-out from Korea during the first months of 1951 poisoned the political atmosphere in which these far reaching science policy decisions were being made. On April 11, Golden and Oliver Buckley, president of Bell Laboratories, met with Charles Stauffacher, executive assistant director of the BoB. Buckley had agreed to accept the chairmanship of what by then had become a Science Advisory Committee to the White House Office of Defense Mobilization, and was being briefed by Stauffacher in preparation for a meeting with President Truman. On that same day, the White House announced that Truman had fired General MacArthur for insubordination, an announcement that resulted in widespread vilification of the president. Eight days later, on April 19, Truman signed a letter drafted by Golden formally inviting Buckley to accept the chairmanship of the committee. On that same day, MacArthur was given a hero’s welcome to Washington, which culminated in an emotional speech to a joint session of Congress.

A Presidential Science Adviser?

In view of the importance that the presidential science advisory system has now attained, Golden’s many conversations dealing with the evolution of that concept and the initial attempts to implement it are among the most interesting features of his memoranda. Vannevar Bush had, of course, served as de facto science adviser to President Roosevelt during World War II, and the suggestion for peacetime a high level science policy coordinator of some sort had been around for sometime: for example, in the Steelman report’s 1947 recommendation for a liaison officer between the White House and the science agencies, and the Stewart report’s 1948 recommendation for a scientific adviser to the Secretary of Defense with access to the president. However, even though his original concept of a presidential-level scientific advisory system was almost entirely defense oriented, Golden appears to have been the first to argue that such a system should be instituted on a permanent basis even in peacetime. It is not clear from his memoranda how or when he actually conceived of the idea. However, it is among the principal topics he discussed with Bush on October 24, less than a week after Truman had approved his consultancy. (Bush was unconvinced, primarily because he doubted that Truman would make much use of such an advisor - a prediction that turned out to be on the mark!)

Golden’s assertion in his memorandum on a December 8 conversation with Special Adviser to the Secretary of the Air Force Louis Ridenour that “at last” he had “flushed out” a strong opponent to the concept of a science adviser to the president may indicate that he regarded the opposition expressed by other influential interlocutors as only moderate. For instance, during their December 14 meeting Conant, who in 1941 had conceived of the OSRD along with Bush and had worked closely with him during the war years, conceded “... somewhat reluctantly that a Scientific Adviser to the President might be a useful device and might in effect be necessary because of the times.” Golden’s memorandum recounting a December 20, 1950, meeting with J. Robert Oppenheimer recalls that initially he:
. . . took a position against it, though eventually agreeing that he had no objection to it, saw no particular danger if a good man were selected but had no enthusiasm for it. . . He was influenced in his final judgment by the trend of the times toward mobilization.

Despite the misgivings of such prominent individuals, Golden recollected that a substantial majority of those with whom he discussed the matter were enthusiastic about the prospect of a scientific adviser to the president. Advocates included prominent individuals such as I. I. Rabi, Professor of Physics at Columbia University who had received the Nobel Prize in 1944, and Lee DuBridge, president of the California Institute of Technology. DuBridge was the person named most frequently by Golden’s interlocutors as best qualified to fill such a position. On November 22, Golden reported that Detlev Bronk, president of both Johns Hopkins University and the National Academy of Sciences, had expressed considerable enthusiasm for the concept, although he wondered, “in the abstract,” whether the responsibilities of that officer might best be fulfilled by the president of the National Academy of Sciences! Most tellingly, on December 16, an ad-hoc group convened to evaluate and recommend steps to reform the Research and Development Board chaired by James Killian, president of MIT, expressed its strong support for the scientific advisory concept as Golden then conceived of it.

The considerable enthusiasm that Golden’s scientific adviser concept evoked among the people he met appears to have been due, in part, to the virtually universal rejection he encountered of the Stewart Committee’s 1948 recommendation to reconstitute the OSRD. For example, on October 24, 1950, Bush stated that he was opposed to any reconstitution of the OSRD at present, on the grounds that it would have little to do and would “grow rusty.” Oppenheimer, too, believed that there would be little for a new OSRD to do. The attitude of DuBridge, Killian, and Stewart on October 25 was, that, “. . . when the crisis comes, the new organization will spring up almost virtually automatically around the scientific leaders who will come to the fore spontaneously.” And, as noted earlier, Rabi feared that any attempt to reconstitute an OSRD would disturb, “the good work going on in universities.” Only Lee DuBridge thought that a new OSRD might be viable, provided it was initiated on a small scale and dealt with risky projects that the Department of Defense (and in particular the RDB) could not yet consider.

In view of the strong opposition he encountered on the matter of the OSRD, Golden began to conceive of two primary functions for a scientific adviser to the president:

first, to provide him with information about all relevant R&D activities being undertaken by the federal agencies;

second, to begin to plan for a new OSRD which could be activated whenever the inevitable military crisis occurred.

By December 6, Golden was sufficiently confident about his concept that he shared it with Elmer Staats, assistant director of the Bureau of the Budget, who urged him to write a memorandum to the president expressing his views. On December 27 Golden presented his memorandum, dated December 18, to John Steelman, the Assistant to the President, who assured him that he would transmit it to Truman expeditiously.

It appeared, at the beginning of 1951, that both a presidential scientific advisory system and a fully functioning National Science Foundation would be in place within a very few months. But two unanticipated obstacles which also had an impact on the National Science Foundation stood in the way of the scientific adviser plan.
First, as already noted, at its second meeting on January 3, 1951, the National Science Board opposed the scientific adviser concept, on the grounds that it would dilute its own authority. This challenge was countered on January 5 by means of Staats’ proposal that the single scientific adviser might be replaced by an advisory committee, on which the NSF director would have a statutory position, along with the president of the National Academy of Sciences, the chairman of the RDB (then William Webster), and the chairman of the General Advisory Committee to the Atomic Energy Commission (Oppenheimer).

A more serious challenge emerged on January 19, 1951, from General Lucius Clay, hero of the Berlin Airlift and at that time assistant to Charles E. Wilson, director of the White House Office of Defense Mobilization. Although, as Golden recounted, Clay was in complete accord about the need for an individual to carry out the presidential scientific advisory functions, he:

... stated that he did not like the title, Scientific Adviser to the President, and more specifically, that this individual and his staff or committee should be located in the Mobilization Office of Mr. Wilson, and that this Scientific Adviser should be called an Assistant to Mr. Wilson for Scientific Affairs... He regards scientific matters as falling within the purview of mobilization activities for which Wilson is deemed to have complete deputization from the President.

Faced with Clay’s barely concealed ultimatum and the accommodation reached with Conant on January 5, Golden sought a further compromise that would remain acceptable to the scientific community. He replaced the single scientific adviser to the president with what he first refereed to as a Committee on Defense Scientific research which would report to the Defense Mobilization director, but whose chairman would also have access to the president. He met with Clay again on January 26, equipped with a draft letter from Truman to the undesignated chair of the proposed committee which spelled out these conditions. Clay accepted Golden’s compromise, subject to the approval of mobilization director Wilson — which was soon forthcoming. The problem now was to locate a suitable chairman of what finally became the Scientific Advisory Committee of the Office of Defense Mobilization who would be acceptable both to the scientific community and to General Clay.

Golden had been soliciting nominations for the putative science adviser position from the outset. Lee DuBridge, president of the California Institute of Technology and wartime director of the Radiation Laboratory at M.I.T. was the candidate who emerged most often by far from Golden’s informal inquiries. Rabi was particularly enthusiastic, characterizing DuBridge as an outstanding scientist who was widely respected in the scientific community. The single prominent dissenter was Bush who stated categorically, on December 5, that although DuBridge was certainly very capable, he did not believe he was the man for the job. DuBridge himself was obviously interested. When on October 25 he was asked his opinion about the scientific adviser concept, he not only approved but began to ponder such logistical matters as whether that official’s office ought to be in the Pentagon and which government agency would pay the travel vouchers for the adviser and his consultants and/or committee. But when, on December 13, Golden asked him directly whether he would accept an appointment as scientific adviser to the president, DuBridge admitted that he could do so only on a part time basis. He was committed to Caltech and believed he had a strong moral commitment to devote a substantial fraction of his energy to that institution.

The problem of whether DuBridge could be persuaded to serve part time as the scientific adviser to the president was made moot by Charles Wilson’s January 26 agreement to establish a Scientific Advisory Committee to his Office of Defense Mobilization. Wilson made it clear that that committee should be chaired by a man with an industrial rather than an academic background. And the man he wanted was Mervyn Kelly, vice president of the Bell Telephone Laboratories.
In the course of his conversations prior to January 19, Golden had occasionally raised the question of whether an individual with an industrial background should be considered in preference to one with a university background? Conant (December 13) said no, on the grounds that most of the scientists who would need to be recruited for a new OSRD-type arrangement in a time of crisis would come from universities. Rabi (January 5) answered the question implicitly when, weighing the relative merits of Killian and DuBridge, he selected the latter as the better candidate for the scientific advisory position because Killian, although a good administrator, lacked scientific credentials.

Among those who did not dismiss Golden’s suggestion of an industrial scientist out of hand, Mervyn Kelly’s name emerged most frequently. Thus, when Wilson indicated that Kelly was the man he wanted to serve as chairman of his Scientific Advisory Committee, Golden must have been convinced that he had, at last, identified a candidate acceptable both to science and government.

But the white hope represented by Kelly soon evaporated. On February 22 Oliver Buckley, president of Bell Laboratories, informed Golden that Kelly would not accept the position. He (Buckley) was about to retire and Kelly had long looked forward to succeeding to his position. For a few days it seemed that Charles A. Thomas, executive vice president of the Monsanto Chemical Company, might be a suitable candidate. However, Golden’s memorandum on a February 26 conversation with Oppenheimer refer to “the Thomas matter” in such a way as to suggest that he did not expect him to accept the position which, in fact, turned out to be the case.

Thereupon, for reasons not clear from Golden’s memoranda, Buckley then became the leading candidate to chair the scientific advisory committee. But Buckley was dubious: was there really a “job to be done?” Would Golden object if he discussed the matter with his colleagues on the Council of the National Academy of Sciences? Whom would Golden suggest he talk with? Bush? Conant? DuBridge? Bronk? Oppenheimer?

Golden, whose normally temperate memoranda could scarcely conceal his frustration, told Killian bluntly in a March 24 telephone conversation, that unless he and others whom Buckley respected could persuade him to accept the chairmanship of the committee, the whole question of who was qualified to fill that position would have to be reopened, with the possible result that the entire concept would be rejected by Wilson and Truman.

Apparantly Killian and others prevailed, since Buckley consented to accept the offer, which was formally extended in writing by the president on April 19. Truman’s letter was only a slightly modified version of the draft that Golden had prepared for General Clay’s approval on January 26. In particular, access to the president was assured by means of a critical phrase, carried over from that draft, in which Truman asserted that the SAC

… will be in a position to advise both Mr. Wilson and me concerning the interrelationship of the mobilization program and the achievement of our long-range objectives of continued progress in scientific research and development.

Thus, Oliver Buckley became the first in a succession of presidential science advisers that has been maintained, albeit in differing organizational forms, from the Truman through the Clinton administrations.

Truman’s letter made four statutory appointments to the SAC: Detlev Bronk (president of the National Academy of Sciences), William Webster (chairman of the Research and Development Board),
Alan Waterman (director of the National Science Foundation), and Hugh Dryden (chairman of the National Advisory Committee for Aeronautics, but designated in his capacity as a member of the Interdepartmental Committee on Scientific Research and Development). The non-statutory members appointed were: James B. Conant, Lee DuBridge, James R. Killian, Robert E. Loeb (professor at Columbia University’s College of Physicians and Surgeons), J. Robert Oppenheimer (named in his personal capacity rather than that of chairman of the General Advisory Committee to the Atomic Energy Commission), and Charles A. Thomas.

Consistent with Vannevar Bush’s political instincts and Oliver Buckley’s retiring character, the Scientific Advisory Committee to the Office of Defense Mobilization seems to have been largely ignored by both the director of the Office and by the president during the 21 months that remained of the Truman administration. However, it provided the basis of what was to be elevated, in November 1957 in the wake of Sputnik, to the full-fledged President’s Science Advisory Committee that Golden had advocated in all of his conversations six years earlier. As chair of that committee and his full-time science adviser, President Dwight Eisenhower selected the sole non-scientist from the original SAC, James Killian, who had been one of Golden’s major supporters in his campaign to establish such a system.18

The National Science Foundation

The National Science Foundation (NSF) was slowly taking shape in parallel with the presidential scientific advisory system and involved many of the same actors, with developments in Korea never far from sight.

According to the May 10, 1950, Act, the Foundation consisted of “a National Science Board and a Director.” The National Science Board (NSB) was to consist of 24 presidentially-appointed members, “eminent in the fields of the basic sciences, medical sciences, engineering, agriculture, education or public affairs.”19 Golden has appended to his full set of memoranda a November 2, 1950, White House press release announcing the president’s 24 nominees to the NSB, although the memoranda themselves take no note of that event. Among these nominees, Golden had already had conversations with Bronk, Conant, and DuBridge on more than one occasion.

The National Science Board met for the first time on December 12, 1950, two weeks after the Chinese intervention in Korea. According to the minutes of the meeting, the principal items of business were to elect a chairman (Conant), appoint a nine-member executive committee and elect its chairman (Bronk), and to devise a procedure for drawing up a list of candidates for the NSF directorship for consideration at the next meeting, scheduled for January 3, 1951. The minutes also note that business was suspended at noon for informal remarks by President Truman, and resumed at 12:30. However, they provide no information about the content of those remarks. The president may have had other matters on his mind. Four days later, Columbia University announced that Dwight Eisenhower would take a leave of absence as its president in order to return to active military service as Supreme Commander in Europe, a clear signal that the United States and its Western European allies did not discount the possibility that the Soviet Union might take advantage of American preoccupation in the Far East to launch an attack on West Germany.

Golden’s memoranda recount a December 13 meeting with DuBridge and a meeting the next day with Conant. A remarkable aspect of both accounts is their failure to make any reference to the December 12 NSB meeting which literally marked the birth of the National Science Foundation. The Conant memo does state that, “we talked a bit about the National Science Foundation,” but provides no
insights beyond those covered in earlier conversations with other people. Rather, both NSB members focused on the Korean situation, the travails of the RDB, and the functions of a possible presidential scientific adviser in mobilizing science for war. Golden had, however, discussed matters related to the National Science Foundation with DuBridge and others on earlier occasions, and continued to do so throughout the period of his consultancy. Although his principal concern was with scientific mobilization, including the creation of a presidential scientific advisory apparatus and the reorganization of the RDB, Golden also set himself the task of recommending to the NSB a specific program for the National Science Foundation consistent with the defense-oriented priorities of the times. His recollections of these conversations suggest that he was receiving a somewhat unanticipated education in the ways of the federal bureaucracy and the attitudes of leading scientists (mainly physicists) toward the conduct — and autonomy — of basic research!

Even supporters of NSF recognized that it would be subject to severe budget constraints from the outset. A December 6, 1950, memorandum of a conversation with Robert F. Bacher, chairman of the Department of Mathematics, Physics and Astronomy at the California Institute of Technology states:

He was in general agreement . . . that under present conditions of intense mobilization following our defeats in Korea that funds should not be allocated to NSF which would put it into competition with more immediate mobilization requirements for civilian scientists. Nevertheless he stressed the importance of basic scientific research, particularly for matters five years or more off, and said that certainly this work should not be cut down in any way.

Golden and others (e.g., Bush — see memorandum on December 5, 1950, conversation) made the not unreasonable assumption that since the concept of a single federal agency with primary responsibility to support basic research and science education had been the centerpiece of Science—the Endless Frontier, now that a National Science Foundation had finally been created, agencies such as the Atomic Energy Commission (AEC) and Office of Naval Research (ONR) that already supported basic research in universities, would feel obliged, indeed relieved, to turn over their basic research programs to NSF, with the implication that in future years funds appropriated by Congress to support those programs would go to NSF instead. It followed that Congress would only have to appropriate additional net funds for NSF during the first few years for a fellowship program, which could be justified on the grounds that the long-term strength of U.S. science required an adequate number of qualified individuals with PhD degrees.

Kenneth Pitzer, director of the AEC’s Research Division, was the first to disabuse Golden about that line of reasoning. In the course of a November 1 meeting, Pitzer agreed that getting a fellowship program underway ought to be a top priority for the Foundation, and volunteered that he would be pleased to see NSF handle the AEC’s pre- and post-doctoral fellowships. When asked how much of the AEC’s basic research programs would be turned over to NSF, Pitzer estimated “perhaps one or two million dollars per annum out of a 20 million dollar per annum basic research budget.” He went on to explain that there would be a “. . . strong tendency to hold control over basic research activities in institutions which were also performing classified programmatic research for the AEC, for in general the unclassified basic research work is much more attractive to universities.” Golden mused to himself that that attitude might also prevail in other agencies. If so, then “. . . this suggests that the NSF will be left with a rather hodgepodge field to support in basic research, at any rate, in the beginning.” On November 29 Alan T. Waterman, Chief Scientist at the ONR, conveyed essentially the same message:

There would be a few projects which ONR might want to turn over to the NSF but these would probably be less than 10% of the total and it would want to take on other projects in their
stead. There are however many projects which ONR regards as very worthwhile but which it does not have funds to finance and these it would suggest the NSF underwrite.

The realization that moderate funds, at best, would be forthcoming from agencies that already supported basic research, coupled with perceived defense-related budgetary constraints, reinforced Golden’s view that fellowship support should be the NSF’s initial top priority. During the course of a December 21 dinner meeting, Robert Oppenheimer carried out a back-of-the-envelope calculation and concluded that NSF could usefully spend a minimum of $6 million per year for a fellowship program. The Bureau of the Budget was thinking in terms of a budget request of $10 million for NSF for fiscal year 1952. If so, then whatever remained in addition to the fellowship funds and administrative expenses might be used to conduct careful surveys on scientific personnel and on the basic research conducted in the country, with the objective of developing an effective long-range plan for NSF.

Several of his interlocutors seemed to agree with this line of thinking. On November 22, Detlev Bronk, “... had the idea that it [NSF] should get under way slowly after careful study of the fields of activity.” Bronk said he was pleased that fiscal year 1951 appropriations were limited to $225,000 for administrative start-up costs, since that would oblige the NSB to conduct those studies before jumping immediately into large scale program support. Thus, he agreed that the $10 million being mentioned for fiscal year 1952 was too high. Bush was even more emphatic than Bronk. Golden quotes him as saying, on December 5:

I would keep them down to a rate of say $200,000 a year and take another look-see at the end of six months or so. See what they are doing and how they plan to go ahead and decide at that time what additional funds to give them.

There were dissenters, however. Oppenheimer, along with Bacher and Charles Lauritsen who also attended the December 21 dinner meeting with Golden, urged that grants for support of basic research were essential, “Oppenheimer being particularly strongly of the opinion that research in this country had never recovered from the diversion to applied fields that basic research had suffered because of World War II.”

They did not react favorably to the question of whether it would not be possible to make a kind of overall tabulation of the areas of basic research being covered and not being covered, etc. Oppenheimer characterized the field of basic research as an essentially limitless universal field with expanding boundaries getting further out as one approached them.

About one issue there was no apparent dissent: the Foundation should not become involved in military-related research. DuBridge and Bronk had been particularly emphatic on that point. For that reason, Conant’s January 5 announcement that the National Science Board had taken exception to the presidential scientific adviser proposal on the grounds that an official who would be concerned primarily with military matters would undercut its own authority came as a considerable surprise. DuBridge explained what had happened on January 8. Based on procedures agreed on in December, the Board had come up with a list of 10 rank-ordered candidates as possible nominees for NSF director. The top three candidates were Bronk, Baird Hastings, a Harvard biologist, and Lloyd Berkner, a physicist then on the staff of the Carnegie Institution of Washington. Conant, as NSB chairman, was instructed to present those three names to President Truman, with whom he was scheduled to meet on January 6. The minutes of the January 3 Board meeting indicate that Bronk was the second choice of one member, the fourth of another, and top choice of everyone else. Yet, as DuBridge reported, Bronk said he would take the job only if it encompassed military scientific activities. “As DuBridge put it, ‘things just snowballed.’
Apparently Dr. Conant as Chairman did not have the meeting under as close control as one might have looked for.” DuBridge, Golden noted:

\[\ldots\] was quite clear about the incompatibility of programmatic military research for the purpose of the National Science Foundation. He also said that Dr. Conant was pretty clearly of these views.

The views of DuBridge and Conant prevailed. At the Board’s February 13-14 meeting, Bronk withdrew his name for consideration as director, possibly because of the military question possibly, also, because he had failed to convince the trustees of Johns Hopkins (with whom he met on January 8) that he could do justice to the presidency of the university while serving simultaneously as president of the National Academy of Sciences and director of the National Science Foundation. Since Hastings and Berkner, the second and third ranking candidates on the Board’s original list had also withdrawn by that time, Conant was instructed to submit the remaining seven names on the list to the White House for the president’s consideration. At the conclusion of that same meeting, the Board issued a public statement, apparently drafted by DuBridge, that disavowed NSF involvement in military matters and included a statement that:

\begin{quote}
It was agreed by the Board that the fundamental objective of the National Science Foundation is the promotion of basic research and education in the sciences throughout the Country.
\end{quote}

The matter of NSF’s involvement in defense research having been resolved, the director of the Bureau of the Budget felt free to transmit to Conant, on February 15, Golden’s “Memorandum on Program for the National Science Foundation,” with a covering memo noting that it would be inappropriate for the Bureau officially to endorse the paper on the grounds that it did not want to appear to prejudge the Board’s actions. That memorandum laid out a detailed rationale for a set of surveys and reviews on which an effective, long-range program might be based. The minutes of the March 8-9 NSB meeting note that all members had received and read the memorandum, and agreed that no action was indicated at that time. Presumably, it assigned a higher priority to other tasks, since it then turned to the matter of confirming the proposed budget for the Foundation for fiscal year 1952 that it had considered in draft in February. A total of $13.5 million was proposed, rather than the full $15 million established as an upper annual limit by the Act of May 10, 1950. Of that amount, $9 million was proposed to support research and $2 million for fellowships.$^{22}$

The minutes also recount that on March 9, the NSB was informed that the president would shortly announce his intention of nominating Alan T. Waterman as the first NSF director. That same afternoon, the nominee took his seat at the table. Although he had ranked only seventh on the original list of 10 candidates drawn up by the Board, Bush had told Golden on October 24 that Waterman was the man for the job, and Rabi expressed the same opinion independently. In any event on March 9, with an operating budget ready for submission to the Bureau of the Budget and a well regarded and experienced individual in line for the directorship, the National Science Foundation was at last on the threshold of becoming operational.$^{23}$

**Insights**

In addition to chronicling the emergence during the early months of the Cold War of two government organizations that have come to be regarded as essential components of the U.S. science policy system, Golden’s memoranda provide insights into the perspectives of the relatively small number
of men who qualified as leaders and spokesmen for the scientific community during that era, as well as
the perspectives of several who were outsiders, by choice or otherwise.

That the number of “insiders” was, in fact, limited is evident from the memberships of three
important government advisory bodies: four of those who were appointed to the Scientific Advisory
Committee (SAC) to the Office of Defense Mobilization when it was created in April 1951—Buckley,
Conant, DuBridge, and Oppenheimer—were already members of the General Advisory Committee to
the Atomic Energy Commission (GAC/AEC). Three of those designated in April as members or the SAC
- - Bronk, Conant, and DuBridge — had also been appointed to the National Science Board the previous
November. Conant and DuBridge were members of all three bodies. This informal “interlocking
directorate” system often simplified logistical matters. For example, since both Conant and DuBridge
were due to attend a meeting of the GAC on Monday, January 6, 1951, it was reasonable to schedule a
meeting of the National Science Board for Friday, January 3. A measure of consistency across advisory
bodies could also be forthcoming, at least in principle. Thus, Oppenheimer was able to assure Golden
that he, Rabi, Conant, and DuBridge would try to persuade the still wavering Buckley to accept the
chairmanship of the SAC on the train they would all be taking to a March 15, 1951, meeting of the GAC
in Chicago. However, the NSB’s short lived revolt against the presidential scientific advisory concept
demonstrates that such consistency could also be undermined by a strong ego.

Detlev Bronk, who seems to have been widely admired as a first-rate scientist as well as a
humane individual, may actually have dreamed of becoming a one-man directorate. When Golden first
broached the scientific adviser concept to him on November 22, Bronk wondered, “abstractly,” if that job
could best be done by the president of the National Academy of Sciences. At the second meeting of the
National Science Board the following January, neither Bronk nor any of his colleagues perceived any
conflict (either of time or interest) in his assuming the directorship of the National Science Foundation,
in addition to the two influential positions he already held. Bronk even insisted that the scope of the
Foundation had to be expanded to include military matters if he were to assume that third position.
DuBridge’s attitude was somewhat different. Although he was virtually everyone’s first choice as
scientific adviser to the president and certainly relished the prospects of assuming that position, on
December 18 he admitted to Golden, somewhat reluctantly, that he assigned a higher priority to his duties
as president of Caltech.24

From around March 1 onward, Golden’s memoranda deal increasingly with efforts to persuade
Oliver Buckley to accept the position as chairman of the SAC. They suggest that Buckley was a modest
individual who, although well regarded by the movers and shakers, fully recognized that he was not
really one of the insiders. Although he was president of a leading industrial research laboratory and a
member of the Council of the National Academy of Sciences he did not, as Golden commented, wear the
“class ring” of academia that both Rabi and Conant had insisted would be an essential attribute for any
effective scientific adviser! Since he was on the point of retiring from Bell Labs, Buckley was certainly
aware that he had been selected to fill the position of SAC chairman primarily by default, and seems to
have accepted the position mainly out of loyalty and perhaps deference to those who did wear the class
ring. Buckley emerges from these memoranda as a man who wanted very much to retire from public
service. For example, during his second meeting with Golden on February 27, he seemed more interested
in talking about his volunteer work with the Multiple Sclerosis Society than in the science policy issues
that concerned Golden’s other interlocutors.25

The very different styles of Oppenheimer and Rabi — two strong individualists who were also
acknowledged leaders both by virtue of their scientific achievements and their contributions to science
policy — are evident from Golden’s transcriptions. Oppenheimer emerges as decisive, if somewhat
arrogant. He does not hesitate to fault Golden’s scientific adviser concept, and ridicules as “fantastic”
his colleague Charles Lauritsen’s idea that such an official should have cabinet rank. He was also used to striking while the iron was hot. While others had agreed in general terms with Golden’s contention that a fellowship program should be the first priority for the National Science Foundation, Oppenheimer’s first instinct was to estimate the number of awards required, then calculate the funds needed to make them available.

Rabi bursts with ideas, biases, and insider information. During his first meeting with Golden, he stated that Waterman should be NSF director, while volunteering that Lloyd Berkner of the Carnegie Institution was, “. . . too much a live wire for your concept of NSF.” He pointed out that Bush had many enemies both in the military and the scientific community, referred to Oppenheimer as possibly the most brilliant person he could think of, and quoted an unnamed source to the effect that Conant had red tape running in his veins. On January 5, having just returned from Europe, Rabi stated categorically that research on defensive weapons must be the highest priority. The Europeans, he emphasized, had no will to fight; the French regarded it as more prudent to be anti-American than anti-Russian. On that occasion he was also completely informed about the January 3 revolt of the National Science Board against a presidential scientific adviser, even though he was not an NSB member and did not participate in the meeting.

Memoranda of conversations with self-acknowledged outsiders demonstrates that although a handful of men had what might now be considered to be excessive influence within the scientific community and the interlocking circle of government science advisory bodies, their influence in the wider world was limited. When on January 19 Golden presented to General Lucius Clay his concept of a presidential adviser who could plan for the coming mobilization of the scientific community, Clay appeared to like the idea. However, he strongly objected to the notion that that individual should report to anyone but his superior, Charles Wilson, director of the Office of Defense Mobilization. When, a week later, Clay announced that Wilson wanted an industrial scientist in that position, the scientific leaders from academia had little choice but to acquiesce.

Although Lt. General Leslie Groves had retired from active service and apparently retained little influence when Golden met with him on December 17, 1950, some of his views may have been more pervasive among outsiders than one would like to believe. After almost a decade, he still respected Conant and referred to Oppenheimer as “brilliant”. However, he regarded the ideas of M.H. Trytten, director of the Office of Scientific Personnel at the National Research Council, as “a menace”. Trytten “believes in supporting all science students free forever out of the public treasury and Groves is very much against such paternalism.” Groves also “. . . spoke of Rabi and Bacher as having prevented his uniforming of scientists at Los Alamos, which he clearly still resents.”

Golden’s memoranda confirm the rising influence of James R. Killian, an acknowledged insider despite his lack of scientific credentials or even a PhD in some other field. Rabi had briefly favored him as scientific adviser to the president because of his administrative abilities, then rejected him in favor of DuBridge who was also a credible scientist. But it was Killian who, while chairing a December 16, 1950, meeting of an ad hoc committee to evaluate the RDB, rallied the participants behind Golden’s scientific adviser concept. And it was Killian, along with Oppenheimer, to whom Golden finally turned to convince Buckley to accept the chairmanship of the SAC.

The continuing influence of Vannevar Bush in both scientific and military circles is also evident. He is referred to, favorably and otherwise, by almost all of Golden’s other influential interlocutors. Buckley, for example, agreed to assume the chairmanship of the SAC only after an April 8 meeting with Bush who by then, according to Golden, had swung around in favor of the concept. Despite his intimate knowledge and understanding of the nuts and bolts of defense research, Bush constantly professed to be
an outsider, and claimed to like it that way. But it is not clear that he really did. On October 24, he
emphasized that while President Truman was cordial, he did not ask his advice on any important matters
a situation, in Golden’s opinion, “which he clearly resents.” On December 5, Bush spoke of the
desirability of having scientists in policy-making positions in the Defense Department, and reflected
about what he would do about military research if he were Secretary of Defense. He made it clear on
October 24 that he did not want to be considered for membership on the National Science Board and, on
March 1, made the same statement about membership on SAC. “He said he could get all the information
he wanted anyway and that he preferred to operate from outside. When I was leaving he asked me to
please be sure to keep him posted on developments.”

Bush comes across as being sharp, contrary, and shrewd, while occasionally off the mark in his
judgments — such as his certainty that the BoB would compel the AEC and ONR to transfer most of
their basic research appropriations over to NSF. Since Bush is now remembered by most people
primarily as the author of Science—the Endless Frontier, he is also regarded as the prophet of the system
of government support for basic research in universities. Yet in January 1951, he doubted whether the
National Science Foundation was ready to spend more than $200,000 per year effectively. Two months
later, on March 1, he belittled the pretensions of those scientists who insisted on being represented on
SAC. In his judgment the chairman should not be a scientist, but should be someone with engineering
background in an industrial field:

... he said he didn’t care what the scientists thought [about SAC]; that they didn’t need to be
represented — it wouldn’t do any harm — but the problem now is not one of science.”

Golden’s memoranda confirm the impression from other sources that Bush was very much an
anomaly, if not an enigma. Despite the fact that he laid the cornerstone for a civilian-oriented science
policy centered on support for basic scientific research, Bush remained an engineer whose abiding
interest from 1940 onward was in trying to assure that defense-related research remained in civilian
hands perhaps because, like George Marshall or Dwight Eisenhower, he was an old fashioned
conservative firmly convinced of the wisdom of the constitutional principle of civilian control over
military policy.

On December 5, a bare week after the Chinese intervention in Korea when General MacArthur
and others were already calling for massive retaliation, Bush assured Golden that:

... public opinion would not countenance the United States starting a war say by attacking with A-

bombs regardless of whether this would or would not be a good thing to do militarily. ... if public

opinion would countenance this, we would no longer be a democracy.

Precedents

Between October 1950 and April 1951, Golden completed two of the three implicit charges he
read into his October 19 commission from the Bureau of the Budget:

- his December 18, 1950, “Memorandum to the President,” recommending the appointment of a
  presidential scientific adviser who, among his other duties, would provide a nucleus for the
  recreation of an OSRD-like organization when the eventual military emergency emerged; and

- his well considered, February 15, 1951, “Memorandum on Program for the National Science
  Foundation.”
The one aspect of his charge to which Golden devoted the lion’s share of his time and energy was the one on which he ultimately felt most frustrated: namely, how to improve the effectiveness of the RDB. In a March 7, 1951, meeting with Deputy Defense Secretary Robert Lovett, Golden offered some suggestions to that end. Yet the underlying tone of his memorandum of that conversation all but confesses that the problems of the RDB confounded him, as they had baffled all others who had examined its organizations and functions. Official frustration with the RDB was to continue, with the result that it was abolished early in the Eisenhower administration. Despite his failure to resolve the problems of the RDB, Golden’s December 18, 1950, “Memorandum to the President” includes a detailed argument for the desirability of replacing the RDB with a civilian-controlled agency consistent with the description of what was ultimately to be established as the Advanced Research Projects Agency (ARPA) within the Department of Defense in 1958.

The ideas set forth in that December 18 memorandum — as in his “Memorandum on Program for the National Science Foundation” — indicate that, while Golden frequently incorporated the ideas garnered in his wide ranging conversations into his action memoranda, he also weighed and sometimes modified the judgments of others before putting forth his own recommendations. For example, while important aspects of his December 18 memorandum to the president that presage a civilian-oriented Advanced Research Project owe a great deal to conversations with Rabi (November 21, 1950), Waterman (November 29), DuBridge (December 13), and Conant (December 14), they also include ideas not recounted in memoranda on those or other conversations.

The principal recommendations in his “Memorandum on Program for the National Science Foundation” demonstrate even more emphatically Golden’s ability to listen, then interpret. Those four recommendations were consistent with the assumption (on which he had thought had the support of prominent NSB members such as Bronk, Conant, and DuBridge) that, particularly in view of the current military mobilization requirements of the country, the NSF should conduct careful studies before it embarked on major programmatic support endeavors. He therefore recommended that four substantial surveys should be undertaken:

- a comprehensive review detailing the significant areas of basic research now being studied within the United States, showing these separately for research supported by universities, by industry and by the Government. To the extent practicable, the pattern should also indicate work in process in friendly foreign countries. . . such a study, divided by the major sciences including the social sciences, will create a useful frame of reference. . .

- a comparable survey detailing the existing support of graduate and undergraduate education in the sciences by the many public and private agencies so engaged. . .

- a quantitative study of the scientific manpower resources of the United States. . . categories would include scientific and technical specialties as well as degrees of proficiency, years of experience, age brackets and the like. . .

- a review of basic research activities of other Government agencies and in cooperation with them proposals for transferring appropriate portions of their programs to the National Science Foundation. . .

The second of these recommendations was presented at considerable length and notes that initiating a fellowship program need not wait upon the results of the proposed study, a point made by
several interlocutors. But on the matter of the number of fellowships and their cost, Golden differed from Robert Oppenheimer’s December 21, 1950, back-of-the-envelope estimate. Whereas Oppenheimer had spoken in terms of 500 predoctoral and 500 postdoctoral fellowships per year at $3,000 each for a total of $6 million, assuming the tenure of those fellowships were for two years, Golden makes a more conservative (but more generous) recommendation of 150 fellowships per year at $4,000, for a total of $600,000 for one-year tenure, or twice that amount for two-year tenure.

A final significant aspect of Golden’s memoranda is the record they provide of the emergence of several important ideas and institutions that have since become staples of U.S. science policy: some of them with knowledge afore-thought, some without. The importance, to U.S. science, of tracking developments abroad ranks high among recorded precedents in the latter category. On October 20, 1950, Herman A. Spoehr, newly appointed science adviser to the Under Secretary of State, described his plan to establish science liaison offices in the capital of friendly European countries. These officers would,

... establish informal relations with foreign scientists, thereby keeping posted on fields of interest and probable trends and developments in order to pass this information on to interested individuals and agencies in the U.S.A.

After many years of fits and starts, the essence of Spoehr’s idea emerged as what the State Department now refers to as the Environment, Science, and Technology Officers Program of representatives in major U.S. embassies abroad.

On December 21, 1950, Theodore von Karman handed Golden a copy of a memorandum which he had delivered two days earlier to Deputy Secretary of Defense Robert Lovett recommending that a science liaison unit be attached to General Eisenhower’s staff, “… in the Supreme Command of the European Army.” This memorandum was based on von Karman’s belief that, “… valuable brains and laboratory facilities exist there and that effective work is being done which it would be worth our while to know about.”

The initiative of von Karman in delivering such a memorandum to the Defense Department less than a week after Eisenhower had been appointed as Supreme Commander of NATO is praiseworthy. But neither he nor Golden could have foreseen that the idea of establishing a modest scientific presence within NATO would evolve into the NATO science programs which, over the past decades, have come to be widely admired and which now comprise an important bridge between the United States and its NATO allies, and the former Soviet-bloc countries whose alleged military prowess created such concern for Golden and most of his interlocutors, von Karman included, 45 years ago.

No doubt the presidential science advisory system ranks as the most significant of the precedents that Golden observed or attempted to establish with reasonable knowledge of what was intended. Other, somewhat more subtle precedents are presaged by the four recommendations contained in his February 15, 1951, “Memorandum on Program for the National Science Foundation.” The first recommendation — that a comprehensive survey should be conducted on the basic research being conducted in the United States and in friendly foreign countries — includes an explicit reference to the social sciences, reflecting conversations with Bronk on November 22, 1950, and with Killian on December 29. But his suggestion about the inclusion of basic research being conducted in friendly foreign powers is not presaged in any of his memoranda of conversations, save for passing suggestions from Spoehr on October 20 and von Karman on December 21.

Although the National Science Board at its fourth, March 8-9, 1951, meeting declined to consider Golden’s February 15 recommendations in detail, their significance has since been recognized,
at least implicitly, as the periodic involvement of the Foundation in reviews on the status of basic research and scientific personnel indicates. Unwittingly, perhaps, the NSF ultimately came to accept the significance of Golden’s conclusion that various reports it might issue on the status of science, “. . . should become documents of widespread public interest.”

Golden’s third recommendation, calling for reliable quantitative data on existing and projected scientific personnel, provides a particularly striking case in point about his prescience. Two decades later, the National Science Board concluded, in 1972, that it could perform a significant service to the nation by issuing a series of Science Indicators reports based on quantitative data, including the data on scientific personnel that Golden had recommended in his February 15, 1951 memorandum. This series of volumes, since 1987 the Science and Engineering Indicators reports, probably ranks as among the National Science Board’s most valuable and enduring contribution to national — and international — science policy.

The single recommendation in the February 15 memorandum which was not destined to be realized was the fourth, which foresaw the transfer, to NSF, of appropriations for the support of basic research from other agencies. Influenced, perhaps, by Bush’s December 5 assertion to the effect that “the budget boys” will see to it that such transfers would be forthcoming, Golden clearly underestimated the tenacity of the entrenched bureaucracies in guarding their turf from intrusion by even the highest authorities of the federal government.

**Coda**

It is, of course, tempting if idle to speculate on how U.S. science policy might have evolved had the Korean War not intervened. How might the National Science Foundation have been implemented in full peacetime conditions? When (if ever) would a proto-presidential scientific advisory system have been created?

It is equally idle to speculate on whether a science policy centered on federal support for basic research in universities would have evolved in the absence of World War II, or whether the Scientific Advisory Committee to the Office of Defense Mobilization would have been elevated into a full-fledged Presidential Science Advisory Committee in November 1957 without the shock of Sputnik. In fact, World War II, the Korean War, and Sputnik did occur and had undeniable consequences for U.S. science policy.

Golden’s memoranda recount a critical period of a few months when what has come to be called the Cold War science policy model was becoming firmly established. They also underline the oft noted truism that significant changes in centrally important policies are most likely to occur in times of real (e.g., World War II, Korea) and perceived (e.g., Sputnik) military crises.

The establishment of a defense-oriented science policy, whose validity vanished with the Berlin Wall, was accomplished during the first year of the Korean conflict. For the past five years, the United States has been faced with a mirror image of what Golden recounted 45 years ago: the disappearance of a Cold War justification for support of scientific research by the federal government. It remains to be seen whether, in the absence of either a real or perceived military crisis, the United States can devise a coherent rationale for a long-term science policy to replace the one that was established during the months of crisis that Golden’s memoranda recount.
Notes

6. A useful introduction to the principal military and domestic, political events of the Korean years has been provided by, David McCullough, Truman, New York: Simon and Schuster, 1992, pp. 775-856.
8. op cit.
12. Stewart was also the author of the official history of the OSRD — Irvin Stewart, Organizing Scientific Research for War, Boston: Little, Brown and Company, 1948.
14. ibid.
15. Major General Lewis B. Hershey, Director of the Selective Service System.
17. Charles E. Wilson, President of the General Electric Company, was among Truman’s 24 nominees for the first National Science Board. He resigned from that position shortly after his appointment as Director of the Office of Defense Mobilization.
18. Killian served continuously on the SAC until 1957, when he became President Eisenhower’s first full-time science adviser and chairman of the President’s Science Advisory Committee (PSAC). Buckley retired from the SAC chairmanship in 1952 and was succeeded by DuBridge, who served as part time chairman until 1956. He was succeeded in turn by I.I. Rabi, who served until Killian’s appointment as full time science adviser the next year. DuBridge returned to Washington in January 1969 as President Richard Nixon’s first science adviser and served in that position until September 1970.
19. The Act was later amended to include explicit reference to social science as an area in which NSB members could be eminent.
20. Until 1976, the government’s fiscal year began on July 1.
22. Although Congressional action resulted in an appropriation of only $3.5 million for fiscal year 1952, the result could have been much worse. The House of Representatives had originally reduced NSF’s budget to $300,000, or two percent of its request, using the Korean emergency as its rationale. The final appropriations split the difference between that amount and the $6.3 million voted by the Senate. (England, op cit.)
23. Waterman was confirmed by the Senate in late March and sworn in as director by Associate Justice William O. Douglas on April 6, 1951.
24. Eventually DuBridge did manage to reconcile his obligations to Cal Tech with a part time assignment as chairman of the SAC. (See note 18).
25. The first meeting took place at Bell Labs on November 17, 1950, and was arranged at Golden’s with the objective of informing himself about industrial research. His memorandum on that meeting does not mention any discussion of the scientific adviser concept.
Impacts of the Early Cold War on the Formulation of U.S. Science Policy

Selected Memoranda of William T. Golden
October 1950 – April 1951

Decision Memorandum
MEMORANDUM FOR THE PRESIDENT

SUBJECT: Scientific Research and Development of Military Significance

We have on several occasions discussed with you your request that an informal review be made, for your information, of the organization and conduct of scientific research and development activities in the Department of Defense and related agencies- and of the organization of the Government for the promotion of scientific activities generally during the emergency period. Mr. William T. Golden, of New York, has agreed to undertake this study and to submit his findings and recommendations, serving, for the purpose as a Special Consultant to the Director of the Bureau of the Budget.

Among the principal elements which make such a review pertinent at this time are:

1. Current international military and political developments and the greatly expanded military plans and budget now under formulation.

2. The approaching activation of the National Science Foundation.

3. The report of the Committee on Plans for Mobilizing Science (Stewart Report), now before you for consideration, which makes recommendations concerning the establishment of an organization to perform, in the event of another emergency, functions comparable to those of the Office of Scientific Research and Development in World War II.

4. The inquiries which have reached you from congressional and other sources on this broad subject, with particular reference to the relationships between civilian scientists and the military.

5. The emphasis which the increasing responsibilities of the U.S.A. in world affairs places on the relationship between strategic plans and scientific research and development; and the correlative magnified problems of coordination and allocation of research projects between the Services and of insuring adequacy of long-term coverage.

In order to advise you on these matters and to produce information which may be of maximum benefit to all concerned, Mr. Golden, who is cleared for handling of all types of classified matters, plans to have informal discussions within the Department of Defense and other appropriate agencies of the Government and also to meet with scientists and others outside of the Government. Particular attention be paid to present Government organizational structure for scientific research and development and the inter-relationship of such agencies as the Research and Development Board, the National Science Foundation and whatever agency becomes responsible for the functions which were performed by the OSRD in World War II.

(signed: F.J. Lawton) Director
(Approved 10/20/50 Harry Truman)
Impacts of the Early Cold War on the Formulation of U.S. Science Policy

Selected Memoranda of William T. Golden
October 1950 – April 1951

Conversations: 1950
MEMORANDUM FOR THE FILE

SUBJECT: Meeting with Dr. Herman A. Spoehr and Mr. Walter M. Rudolph, State Department

The appointment with Dr. Spoehr and Mr. Rudolph was arranged by Mr. Stauffacher, via Under Secretary Webb’s office.

Dr. Spoehr is the newly appointed Science Adviser to the Under Secretary of State, the position recommended in Berkner Report entitled “Science and Foreign Relations.” Mr. Rudolph is attached to Dr. Spoehr’s office, having in recent years headed the predecessor unit in the State Department as an adjunct to his original duties in the Cartel Section of State. He is an economist, not a scientist. Dr. Spoehr is a biochemist, a little over 65 years of age, with no previous experience in Government. He was, for many years, with the Stanford University branch of the Carnegie Institution and was persuaded to undertake his present assignment largely by Dr. Caryl Haskins of Haskins Laboratories.

Mr. Rudolph described at some length the genesis of the newly established (September 1950) Science Office, starting with the technical missions which went into Germany behind the American Army in World War II. The continuing function was originally assigned to the Department of Commerce and then transferred to the Department of State. At the present time there are only two staff members abroad, both in London. It is contemplated, however, that foreign offices will be opened in about a dozen key points throughout the World. Essentially, the organization will follow the recommendations of the Berkner Report. There will be a central staff in Washington under Dr. Spoehr, whose capacity is a staff one as Scientific Adviser to the Under Secretary of State. In each of the foreign offices there will be from two to five scientists, a total of approximately forty scientists, all of whom have yet to be recruited. The general conception is that there will be a senior man in each of the offices, perhaps someone who, like Dr. Spoehr, has an established position in the scientific community, with a younger man under him. Probably they will be engaged for tours of duty of a couple of years or so. Recruiting is going to be difficult and is the major immediate problem. One of the men Dr. Spoehr is trying to get is Dr. Robert C. Swain, who is Vice President and Director of Research of the American Cyanamid Corporation, aged about 42. Dr. Spoehr hopes that he will take a leave of absence for a period of two years in order to establish the London office.

These offices will officially deal only in unclassified matters and the whole conception is that there will be a two-way flow of information. The collection and dissemination of published matter will be a relatively routine function. More important will be:

a. The function of establishing informal relations with foreign scientists and thereby keeping posted on fields of interest and probable trends and developments in order to pass this information on to interested individuals and agencies in the USA, and,
b. The return flow of information from the USA to foreign scientists and, particularly in Germany and Japan, the encouragement of foreign scientists and technologists to pursue lines of endeavor of particular interest to us.

Back in the USA the Science Adviser’s Office will evaluate the reports received and try to assemble fragmentary information into broad intelligible patterns. They will disseminate the information within the various Government agencies, with the assistance of National Research Council, among other agencies, to industry, institutions, and individual scientists in the U.S. They are also intended to recommend and to advise the Under Secretary on matters of scientific interest which should influence the foreign policy of the U.S., or be considered in it.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Vannevar Bush

I had a stimulating conversation of more than two hours this morning with Dr. Bush who was in good form and most cordial. He expressed approval of this project saying that he thought it a good idea to have a look around. He touched briefly on Mr. Hines’ memorandum for Congressman McCormack which had gone to President Truman and stimulated his concern. We covered all the major elements of my undertaking and rambled back and forth over many relevant matters, Dr. Bush doing the greatest part of the talking, of course. I shall not try to summarize here in detail the many matters covered nor the many examples and reflections expressed by Dr. Bush except as to certain major points. At the end of our conversation Dr. Bush invited me to return and to call on him whenever I so desired.

Dr. Bush is now on the outside so far as Government scientific matters are concerned, a position of which he is very conscious and to which he referred time and time again. Thought President Truman is very cordial to him, he does not call upon him for advice, though Dr. Bush has pointed this out to him on several occasions. He feels that this is not because of any-personal dislike but rather because President Truman just doesn’t operate in this way - the contrast between President Truman and President Roosevelt is very strong in this respect. It is evident that Dr. Bush, who had a very close working relationship with President Roosevelt, does not approve of the present state of affairs. He mentioned, for example, that when President Truman set up the President’s Scientific Research Board - the so called Steelman Board - which prepared the Steelman report in 1947, he did not consult Dr. Bush either before naming the Board or in any in its deliberations. Dr. Bush was on the Board along with a considerable number of other big names but he stated that he had played no part whatsoever in the Board’s work, that in fact he did not see the report until it was in print. He certainly did not approve of the President’s turning to John Steelman who, he said, knew nothing whatever of the subject matter, to prepare this report, when he, Dr. Bush and other qualified individuals were available. In this connection, Mr. Kidd’s comment to me the other day (Kidd worked on the staff that prepared the report) that John Steelman had played virtually no part whatever in the preparation of the report is interesting. Kidd said that he thought that Steelman had probably read the report after it was completed, but that was about all.

As to the Stewart Committee’s report on, “Plans for Mobilizing Science” which report was prepared in response to a request from Dr. Bush two years ago, although the report itself has but recently been put before the President, Dr. Bush said that he hoped that no action would be taken. He feels that it would be a mistake to set up a science mobilization organization at this time, that is, anything to fulfill the functions of the OSRD in the last war or the residual functions, rather, for he feels that there will be nothing for such an organization to do now and it will grow rusty and stale. He feels that such an organization should be set up only when the crises arrives and that it will then be set up spontaneously and can function better in such manner. He pointed out that in 1940 or thereabouts he and Conant and a few others picked up the ball and carried it because the need was there and they were alert and energetic and he points out there will always be such individuals ready to arise from the scientific body of the...
Nation, hence he regards it as academic as to whether the Scientific Advisor for S&A should report to the Secretary of Defense or to the President; he feels that this depends upon the personalities at the time. If we were to have a President like Winston Churchill who is going to be his own Secretary of Defense and run the war, then it would be important for the Scientific Advisor to report to the President. I asked him how he would feel if a man like Stimson were Secretary of Defense, for he had great respect for Stimson, and he thought a bit and it became evident that almost under any circumstances he would feel that the Scientific Adviser - the Bush of the next war - should be able to, in fact, should report to the President - unless, that is the President were very weak or delegated completely his responsibilities in this direction to the Secretary of Defense who would then have to be both strong and respected. Even if a Scientific Advisor were appointed he does not think that Irvin Stewart is the man. Stewart was recommended by Secretary Johnson in his letter of transmittal of the Stewart report to the President.

I suggested to Dr. Bush that perhaps the thing to do was to create the position of Scientific Adviser, or some such title, to the President to be filled by a man of outstanding respect in the Scientific community and possessed of great energy and enterprise - a Vannevar Bush type, that is, a man having the characteristics which Bush demonstrated he had in the period beginning 1940. This man need not have any authority but would have influence on the President and be respected by him and be called on by him and, more important, the President would be susceptible of being called on by the Scientific Adviser whenever the latter felt action was needed. The Scientific Adviser should be a man who would spend only part time on the job and who would be fully occupied in the normal course in matters more or less related to scientific development. It would be important that he be actively engaged in some other fulltime pursuit so that he would naturally be currently posted on goings on in the scientific world and in fact, be a part of them. This would make it easy for him to keep posted in part time on the developments of a scientific character within the Department of Defense, the AEC, the NACA, etc. He would not be concerned with details and by reason of being free of them would be able to have a broad comprehension of the military research programs and an awareness and basis for opinion of defects and inadequacies. Thus, if a war should come or appear imminent he would in an excellent position to determine whether an OSRD-type organization should be set up or whether the regular operating agencies were now fully covering the field. In the former case, he would be the man logically to organize such an OSRD which of course would be a much more limited enterprise in view of the present state of affairs than was necessary in 1940 and thereafter. He smiled, and agreed that this was a good idea, though not a novel one, and that there were real functions for such a person to fill but that President Truman just did not work that way, that he would not call on such a person. This latter may be so or it may not. I am not convinced and feel that the idea should be kept in mind. It is hard to tell whether someone other than Dr. Bush, but of equally outstanding reputation and competence could not attain the kind of relationship to President Truman of mutual respect that, say, obtains in the Truman-Marshall relationship. Bush did say that he thought that Karl Compton had better relations with President Truman during his period of active duty as RDB Chairman than he, Dr. Bush, had had but he said that he thought that this was because of the work that Compton had done on universal military training for President Truman.

In general, Dr. Bush thought that scientific research and development was in a pretty good state in the military and quasi-military organizations, at any rate, in a very much better state than it had been in 1940 and in general, he thought that the situation was not at all bad. He has great respect for the Joint Chiefs of Staff but is rather scornful of its underlying committees in which he said most of the real work is done. He described the members of these committees as special pleaders for their services and he regards this system as deadly. As to the Joint Staff, he thinks the officers there have been selected for merit and are of excellent quality. He thinks that the present Director is a competent man. He has a very high regard for his predecessor, General Gruenther. He referred several times to the fact that the present top echelons in the military are composed of people who are too old, in that their experience dates from the First World War, very largely. But soon they will be displaced by younger officers who first came
into the military after the First World War. He spoke very highly of the Weapons Systems Evaluation Group, in whose creation he evidently played a significant part and said that it is staffed with officers of very high caliber, in fact, he had pointed out some time ago that the officers on the WSEG staff were of higher caliber than the civilian scientific personnel and that “we scientists ought to do something about it”. He thought that much of its success was due to the fact that it was not under the control of the JCS. It reports jointly to the JCS and to the Chairman of the R&DB, although eventually it is scheduled to be turned over to the Joint Chiefs. He spoke highly of General Hull, the head of the WSEG and said that he was an excellent man for the job, open-minded and nonobstructionist. He said that he thought that Admiral Parsons may become the successor to General Hull, who is scheduled to leave soon and this he thinks would be good also. He also esteems Dr. Robertson, the Scientific Director. He was very enthusiastic in his esteem for General Eisenhower.

He thinks very highly of Bill Webster and thinks he is doing a good job in RDB, in fact that a great deal of progress has been made since he and Dr. Compton left its Chairmanship, partly, he says this is evolution and partly because Webster handles himself well. He approves of the authority given to RDB to control research funds. He thinks the job of cataloging and organizing in intelligible form the numerous research projects has been pretty well accomplished. He thinks Webster has made progress in getting good men on his staff but still has a way to go. He spoke of the Bob Wilson (the R. E. Wilson, Chairman of Standard Oil of Indiana) study of RDB organization which he thinks has been about completed though it is his impression that the report itself is perhaps still in the course of preparation - this is the report that Carroll Wilson mentioned to me.

I asked about whether there should not be some more formal coordination of the work of the RDB, the AEC and the NACA, to mention the major Government agencies engaged in scientific research and development. He said, in effect, if Roosevelt were President or somebody who functioned like him, but under Truman it was not possible, and he felt that things were getting along pretty well, with relatively little overlap. He also said that he did not think that any major areas of scientific research were being overlooked, nor were they likely to be. Therefore, for the present at any rate, he did not feel that a scientific adviser to the President would have a great deal to do.

In general, he feels that, surprisingly enough, the military are giving greater and better attention to longer range matters of research and development than to the immediate. Upon my asking him to be more specific he narrowed this down to saying that there is a big gap, in which the military tend to be inert between the development of a new weapon and its transmittal to and employment in the field. He gave several examples of matters relating to the recent Korean war. He said they needed great prodding in this direction, that is in the area between development and logistics. . . He said that although much development work had been done toward the end of the last war on anti-tank mines, the whole field had been left to lie fallow after World War II, despite the obvious and well-known fact that the Russians had many tanks of excellent quality. Instead, he says, the Navy goes on developing a giant cruiser with all sorts of equipment aboard, and against whom is it to be used? He pointed out that with the Russians obviously developing and building up a tank force for rolling across the plains of Germany and Western Europe, an urgent need ever since the end of the last war and continuing was the development of antitank weapons such as mines, but the military were inert.

As to the enormous sums of money planned to go into research and development of a military nature and my question as to whether there would be enough scientists and technicians to expend this money usefully he said that he thought that a very large part of the money would be going into construction of one sort or another, that is, the big cruiser, experimental airplanes and the like and that this sort of expenditure of funds required mechanics and production personnel rather than scientists or engineers. Hence, the expansion in manpower need would not be as great as might at first appear. For
information on manpower quantities and the like he said that Trytten at the National Research Council would be well informed - he is a work horse.

As to the National Science Foundation he said that he had written to President Truman asking that his name not be considered for the slate of members of the board. He volunteered his assistance in the selection of a slate but he has not been called on at all. He said that the Bureau of the Budget had consulted him however and he apparently values his cordial relations with them. He also mentioned his close and favorable working relations with Mr. Webb when he was Director and he esteems the latter. He thought it would take at least a year for the National Science Foundation to get underway but he did not regard this as an evil. . . He thought that Alan Waterman of the Naval Research Lab would be an excellent man for Director of the NSF - he volunteered this. He regards the function of the NSF as the development of scientific talent through scholarships and fellowships and thinks it a good thing that the award of such grants by the Government should be centralized in one place so that there will be a uniform policy. Its second function - that of promoting and supporting basic scientific research - is also desirable to have concentrated. He feels that the Defense Establishment and other operating agencies, even including the Public Health Service which is reluctant in this regard, will gradually turn over most of their basic scientific research work to the NSF. He said that the Navy is eager to do so. The Services will, however, wish to retain some small amount of basic research in which for one reason or another they will have a special interest and he thinks this is not at all undesirable.

As suggested above, he thinks that civilian scientists and the military are working together reasonably well, far better than they did in 1940. In fact conditions are altogether different and he thinks that this mutual understanding of problems is likely to continue for a number of years - indefinitely unless we lapse into an unawareness of the threat of Russia.

He thinks it very important that the Chairman of RDB sit in with the JCS on all sessions relevant to scientific research and development for two-way flow of information. This has been resisted all along (they would not have him) but he thinks it will come to pass during Webster’s regime on RDB.

He strongly believes in “people” rather than “organization charts.”

He spoke of the guided missiles turmoil in the Defense Department and indicated approval for the recent trend of increased awareness, though he did not underwrite the proposed organizational change growing out of the Keller study.

He spoke favorably of Dr. Keith Glennan, the new Commissioner on the AEC, as having a good practical political sense and being a very useful addition.
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Lee A. DuBridge, President of California Tech, Dr. James R. Killian, Jr., President of Massachusetts Institute of Technology, and Irvin Stewart, President, of the University of West Virginia — at lunch with Charles Stauffacher

We touched on a number of high spots and tossed up a few trial balloons. We can meet again in twosomes or otherwise, when desirable.

DuBridge impressed me as extraordinarily keen and quick; Killian, more as an administrator; and Stewart as being very serious, thorough, and dependable. Killian especially, and DuBridge also, agreed with the Bush idea that there would be no value in setting up now, or really even in planning an OSRD type mobilization for science organization. Their attitude is that when the crisis comes, the organization will spring up virtually automatically around the science leaders who will come to the fore spontaneously.

As to how many top echelon or key scientists there are, around whom any mobilization would devolve, DuBridge said that there is a continuous spectrum and it would be difficult to decide where to raw the line. However, ever, it appears that the number is probably somewhere between 20 and 200. I suggested that it might be useful for Dr. DuBridge and some others in his category to play a sort of war game with the placement of this key top scientific personnel. That is, assuming that war were to appear imminent or be upon us, in what activities and fields of research would these key men ideally be placed. There was some discussion, Dr. DuBridge pointing out that placement would depend upon the relative order of urgency and significance of various programs and areas that these would vary from time to time, and that furthermore, he was not well enough informed of the R&DB programs at this time.

Manpower studies are very important - Killian was particularly strong on this. These studies should comprehend not only the key personnel but also lower echelons of scientists and engineers. We mentioned that, per Mr. Kidd’s conversation with Stauffacher and me yesterday, the NSRB is considering setting up a scientific manpower advisory committee and we asked their views. Killian and DuBridge both thought it a good idea. Some discussion as to best organization to which it should report, and conclusion that NSRB was best.

Would a Scientific Adviser or a Scientific Advisory Committee to the President be a good idea at this time? This would be a part-time body comparable to the General Advisory Committee of the AEC but with the broad function of keeping posted on all military-scientific research. Its responsibilities, like those of like GAC would be solely to make recommendations in its judgment and like the GAC, it should have access to all the information it wished and be privileged to call upon the R&DB, the AEC, the NACA (and perhaps the NSF), etc. for presentations on any subjects in which it was interested. This idea met with considerable favor. DuBridge even mused on whether its offices should be in the Pentagon
as a matter of convenience, or elsewhere for greater objectivity. He went far enough out into it to wonder what Government agency would attend to paying of travel vouchers and such like. He thought in terms of a committee somewhat larger than the nine man GAC, in view of its broad field. All agreed that such a body should liquidate almost automatically if war came or became imminent, and that out of it would spring, in some indeterminate manner, the new OSRD in whatever form was best suited to the conditions then prevailing.

DuBridge especially felt, or rather took as a matter of course, that there would be a considerable area for activity by an OSRD type organization despite the great progress made by military research organizations. This was not discussed into any definite conclusions. He stressed, however, and Killian agreed, that if war was at hand there would be a considerable number of top scientists not yet engaged in full-time military work who would be too valuable to put in subordinate positions and for whom there would not be, even as civilians, a sufficient number of major posts. Thus, again the need for an ORSD.

As to the question of whether there were already too many advisory committees, DuBridge responded that, if anything, there were not enough. As to the question of whether there should be an effort made to coordinate the membership on the many committees, both he and Killian felt that very definitely this should continue on a haphazard, self-adjusting basis. As to the question of whether it would be desirable to have any kind of overall coordination or at least some degree of awareness in one place, of the responsibility of the research programs of the Department of Defense (which converge in the R&DB), NACA, AEC, NSF, etc., there was a little discussion but no indication of conclusions. The question is increasingly significant because of the much larger sums of money being spent for research and the increasingly larger manpower involved. Hence, informal awareness and avoidance of competition and gaps become increasingly difficult or inadequate. This question should be returned to.

An ad hoc review board for the R&DB was set up within recent months by Bill Webster. It consists of DuBridge (with Bacher as alternate), Killian, Hovde, Kelley of Bell Tel Labs, R. E. Wilson of Standard Oil of Indiana and perhaps one or two others. This must be Committee that Carroll Wilson mentioned to me as including R. E. Wilson. They met a month or so ago and were given what Killian described as an excellent presentation of the R&DB’s activities. They are going to meet again about November 5th to draw together their advisory report.

There was recurrent discussion of the Stewart Report on “Mobilizing Science” and he (Stewart) made it clear that if it were thought that it would do any good he would try to have his name withdrawn as a candidate for the position of Scientific Adviser called for in that report. He made it clear that he had no ambition for the job and that he agreed to the suggestion which was made by someone else solely because it would be evident that since he is not a scientist he would be there solely on interim position to be replaced as soon as conditions became more critical. He was told there would be no point in taking this step. He said that the report finally recommended that the Scientific Adviser report to the Secretary of Defense with the right of appeal to the President rather than report to the President directly solely because Secretary Johnson told the Committee that the President did not wish the adviser to report to him directly. Stauffacher had never heard of any such thing and was confident that it must have been misunderstood.

Stewart may be in Washington early next week to see Secretary Lovett, with Bill Webster, about the Stewart Report, “Mobilizing Science.”
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Kenneth Pitzer, Director, Research Division, Atomic Energy Commission

On Wednesday, November 1, Kenneth Pitzer and I had a long lunch together. At about Christmas time he is leaving the AEC, as previously planned, and will go to Oxford, England for about six months on a Guggenheim Fellowship to complete a study on which he was working prior to his AEC undertaking. He will then go back to Berkeley, beginning the September term of 1951.

We discussed the National Science Foundation functions. He agreed with the idea that it would have to start slowly and that it would be sound for the first to make a careful study of the fellowship-field and basic scientific research fields before undertaking active support. However, he thought it could start some activities without awaiting the completion of thorough study particularly he would like it to get into the fellowship field because he would like to turn over to it the handling of AEC pre and post doctoral fellowships, as the present arrangement with the National Research Council is makeshift and not fully satisfactory.

We had some discussion of the magnitude of fellowship support in the United States at the present time. The AEC programs total 2 million dollars per year covering both the physical and medical-biological sciences. The average stipend is about $2500 per year so that something like about 800 individuals receive this support. His impression is that very few individuals of top quality fail to pursue their scientific studies because of unavailability of funds, his point being that additional fellowship support by the Government, which he thinks desirable, would broaden the base by opening opportunities to additional individuals who, although qualified, are not as well qualified as those now being supported.

He thought that fellowships awarded by private industry total perhaps 1 million dollars per year, but this was a very off hand figure and may be substantially inaccurate.

He thought that a scholarship that is, undergraduate program by the Government was an entirely different matter and that geographical distribution might not be a bad idea. But a scholarship program would essentially be an educational matter and not a program for the encouragement of science on a substantial level.

We talked about the function of the National Science Foundation in encouraging basic research, and I asked him how much of the AEC’s program of this kind it would turn over to the NSF. He said perhaps one or two million dollars per annum out of a 20 million dollar per annum basic research budget. I remarked what a small percentage this was and he agreed, but said that there would be a strong tendency to hold control over basic research activities in institutions which were also performing classified programmatic research for the AEC, for in general the unclassified basic research work is much more attractive to universities, etc. It is rather evident that this attitude would be quite general and
would apply to other Government agencies such as the Public Health Service, the Department of Defense components, etc., as well as to the AEC. Thus the principal volume of basic research to be supported by the NSF would appear to be in those areas which are already being supported by Government agencies with a more or less direct interest in the specific fields. Even the Naval Ordnance Laboratory would probably want to retain—or at any rate the Navy retain—a substantial part of the fundamental research being supported by it. I must of course ask about this when I talk with Dr. Waterman. Pitzer did mention that many proposals came to him which he had to reject because, though he believed them to be meritorious, he could not see his way clear to justifying them through relevance to the AEC’s area. All this suggests that the NSF will be left with a rather hodgepodge field to support in basic research, at any rate, in the beginning. This emphasizes the desirability, in fact the need, for NSF to make a thorough survey of what being supported and what should be supported in basic scientific work before undertaking to support any of it itself.

We talked about the idea of a scientific advisor to the President, and this he thought would be a very good thing. He felt this should-be an individual advisor, not a committee.
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. I. I. Rabi

I spent a couple of hours on the afternoon of November 16, with Dr. Rabi, whom I had known previously. He is Professor of Physics at Columbia University and it was in his office there that we met. He is also a member of the General Advisory Committee of the Atomic Energy Commission and won the Nobel Prize in Physics around 1944. During World War II he was in the radiation laboratory at M.I.T. working on micro-wave radar etc.

As to the National Science Foundation, his thought is that Dr. Conant would be the logical Chairman. As to Director, he thought that perhaps Dr. Alan Waterman of ONR, but he hoped for someone of bigger stature. However, he esteems Waterman highly, and in fact all of the Office of Naval Research’s record. Dr. Berkner he regards as too much of a live wire for my concept of the NSF. Actually they are trying to get him for Associated Universities, Inc., (operators of the Brookhaven National Laboratory of the Atomic Energy Commission) with the idea of expanding its functions and activities. The “they” in the previous sentence refers to the Columbia and other eastern university people who are associated in AUI.

As to the OSRD concept he says that sooner or later it will be essential to have a civilian organization of scientists to supplement the work done in research and development by the military. But he believes that this is not yet the time. Don’t disturb the good work being done in universities etc. But, he suggested independently—that is I did not make the suggestion to him first—now would be a good time to set up a Scientific Advisor to the President with an Advisory Board of specialists say 7 to 10 with essentially the functions I have described in other memos. This Advisor would be a nucleus and a planner or an OSRD to be set up at the right time and he would also be an observer etc. I asked him who would be the man and he thought DuBridge would be best. Then he went on to say perhaps Dr. Killian, President of M.I.T., whom he regards as an excellent administrator, but after a little discussion he reverted to DuBridge since he is an outstanding scientist highly esteemed throughout the scientific community and Killian is an administrator rather than a scientist. He has great enthusiasm for DuBridge, particularly as a scientific administrator, and says he would be welcomed by scientists. He said Conant would not be the man for Scientific Advisor to the President because he is not sufficiently well liked. He pointed out that Conant was defeated for the Presidency of the National Academy by a revolution from the floor by the chemists of which he is one, and that Bronk was then nominated and elected by acclaim—a unique event. This had been brought to my attention by others. He has great esteem for Conant but thinks this would not be the job for him. He also said [Karl] Compton [Chairman of the MIT Corporation] would not be the man. He is too old for this purpose. Neither would Bush be the man. He has enemies among scientists as well as among the military. He has respect for his competence in many ways but has questions as to his administrative ability, and points out that he is not a leading scientist as such. When he commented on DuBridge he said he has the kind of ability which makes difficulties melt away and he recalled that someone had said of Conant that red tape flows in his veins. Incidentally he
also commented upon Alfred Loomis and on Carroll Wilson [former General Manager of the Atomic Energy Commission] and on Bob Robertson of the WSEG. He has greatest esteem for Robertson. He thought Oppenheimer would definitely not be the man for Scientific Advisor to the President, although he regards him as a most brilliant individual and could not offhand think of anyone whom he would put in a class with Oppenheimer for brilliance. As to Bronk he esteems him very highly as a scientist and as a human being but thinks him not a good organizer and not the man for Scientific Advisor. In this his comment was consistent with that which has been made by quite a number of others. In connection with his comments on Carroll Wilson it is interesting to recall that the latter had told me, in going over many names, that Rabi would not be worth seeing. Hafstad, on the other hand had urged me to see Rabi.

Rabi is going abroad in the near future on some scientific convention or mission and will be back within the first few days of January—in time for the GAC meeting on January 6, or thereabouts.
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Detlev W. Bronk

Following our brief conversation at the Pentagon last week, incident to Dr. Karl Compton’s conference here, I called on Dr. Bronk at his offices at the National Academy of Science this morning, he having expressed a desire for a lengthier discussion. We spent a couple of hours together. Dr. Bronk, in addition to being President of Johns Hopkins University, has been President of the National Academy since the Spring of 1950 when he was elected for a four-year term. Previously he was President of the closely related National Research Council. Traditionally Presidents of the National Academy are not reelected although an exception was made during the War. There are about 450 members of the National Academy. The National Research Council is composed of delegates from each of the significant learned societies, specialized engineering societies, etc., in the United States. Dr. Bronk has also recently become a Director of the Sloan-Kettering Institute of New York City.

We talked principally about the National Science Foundation, about the OSRD function, about the concept of a Scientific Advisor to the President, and about the functions and functioning of the National Academy of Sciences and the National Research Council.

As to the National Science Foundation, Dr. Bronk had the idea quite definitely that it should get under way slowly after careful study of the fields of activity. We talked about the ideas of preliminary study of what is being done and what should be done in promotion of basic scientific research and in a fellowship program etc., and he was fully in accord with the concept of careful study before action. He thought that only small amounts of funds should be expended and that they should be expanded slowly. He said that he was pleased, rather than the contrary, that only about $225,000 had been appropriated for the NSF in its first year. We did not talk in specific terms as to dollar amounts for its second year, that is Fiscal ’52, but when I mentioned that some $10,000,000 had been tentatively talked about in the Bureau of the Budget he indicated that he thought that was quite high. He has already spoken with three or four members of the NSF Board with the idea of having some small group at any rate which will have common ideas and provide leadership for the initial meeting which is scheduled for December 12... He asked whether I thought that the NSF should get into the social sciences as well as the natural sciences. We talked at some length about his feeling that it very definitely should do so. He has been much interested for some time in the inter-relationship between the social and natural science and feels that much useful work can be done here. I asked him about the work to be done by the Ford Foundation in this field and mentioned that according to hearsay the Ford Foundation will have some $50,000,000 a year to spend. He was generally aware of this and I noted that he had on his desk the preliminary study report which the Ford Foundation published not long ago.

He did not express any preferences as to chairmanship or vice-chairmanship or directorship of the NSF, and I did not press him for his views on this. He did, however, mention and asked me whether I
had heard about the ex-senator, who has been mentioned as a possible designee for the directorship. He said he did not know him personally and did not doubt that he was a man of distinction and competence but felt that he was not qualified for this particular position. It was interesting to me that he had heard of this, and it was quite evident that he would resent the imposition of such an appointment over the contrary recommendations of the Board, if there should be such.

We talked a bit about the way the NSF might get under way and about the possibility of preparing carefully thought out factual and opinionated reports covering the work now being done by Government, industry, and the universities in the support of basic scientific research, and similar study reports on fellowship programs now in existence. He likewise mentioned the desirability of preparing similar study reports of the social sciences which would show what is now being done and what might ideally be done and indicate possible divisions of responsibility between NSF and other Government-supported work and privately supported work by Ford Foundation and others. The thought was expressed that these study reports might be published and would be very useful to the community at large in guiding private agencies as well as serving primary purpose of furnishing the basis for NSF policy for its Board. Preparing these reports the Board of the NSF and particularly its committees could furnish excellent guidance to the staff in the fields of their special knowledge and interest. This would also give the Board members something to do during the study period.

As to a latter-day OSRD, he felt definitely there should not be any such agency created at this time. As to whether one should ultimately become desirable, that is to say in the event of war, he was inclined at first to the contrary. His feeling was that with the greatly improved status of civilian scientists in military work, and the greatly increased amount of such work being done on the one hand in the Department of Defense and on the other in the AEC and other such agencies, that an outside civilian group would not be needed. He based this feeling on the hope that the National Academy of Sciences would take a very effective part in giving guidance to the military. In part, he reflected his objectives of revitalizing the National Academy as an active body. However, no one else to whom I have spoken has given any indication thinking that the National Academy could actively fulfill such a role. Incidentally, Dr. Bronk mentioned that he is in Washington about three days a week apparently primarily on National Academy matters. He sees Bill Webster from time to time and also Admiral Solberg of ONR, perhaps once a month or something such, and is quite hopeful about the influential possibilities of the National Academy and its committees. In this he includes the National Research Council of course.

However, when I asked him what he thought about the idea of creating a Scientific Advisor to the President with the functions I have outlined elsewhere, that is, (a) keeping fully informed on all matters of scientific research and development activities of a military character in all Government agencies so engaged; and (b) constituting the nucleus of an OSRD ready to call it into being immediately should the need arise, he expressed very considerable enthusiasm. The creation of such a post interested him very much it was evident. We talked about several individuals who would not have the qualifications necessary for the post, primarily because they had in the past in being extremely effective--that is in OSRD particularly--created enemies either within the military or within scientific groups or both. And hence, although they are extremely competent and would be very useful in an emergency, they would not be the man to be the Scientific Advisor. He did not think that the President of the National Academy, considering this in abstract, would be too occupied or in any other way disqualified for holding this post. In fact, he thought there was a logical relationship which might prove quite useful all around. He agreed that the Chairman of the NSF should not occupy this post on the grounds that the NSF should have

1. Truman, who had sounded out Frank Graham of North Carolina, who had been defeated in the November 1950 elections about his interest in the directorship, offered him another position when the opposition of the National Science Board became clear. (ed.)
absolutely nothing to do with matters of a military character. This latter point should have been stressed above in the discussion of National Science Foundation. He, as well as everyone with whom I have spoken, was crystal clear about this. That is, that the NSF should confine its activities entirely to non-military matters, that it was in this sphere that the hopes of the scientific community for the Foundation lay, and that it could be of very little value in directly military affairs but could be very valuable, especially over a period of years in non-military matters although the research discoveries might ultimately have military uses. Of course in time of war things might be different.
We talked principally about the National Science Foundation, including its relationship to the Office of Naval Research, and about the concept of an OSRD and its relationship to the RDB.

As to the National Science Foundation, he feels that it should, by policy, not engage in any military work, but inevitably, eventually anyway, there are bound to be certain areas of overlap or of dual interest; but he does not see that this need be a problem and hopes it will not be. We talked further about the NSF, essentially along lines similar to other conversations.

With reference to ONR’s relationship to the National Science Foundation, in reply to my question he told me that it was felt that the ONR budget should not be reduced. There would be a few projects which ONR might turn over to the NSF but these would probably be less than 10% of its total and it would want to take on other projects in their stead. There are however many projects which ONR regards as very worthwhile but which it does not have funds to finance and these it would suggest the NSF underwrite. His remarks were remarkably similar to those expressed by Ken Pitzer, of the AEC, Director of Research, when I asked him essentially the same question.

With respect to the OSRD concept he presented to me what he described as a radical idea and one which he said he had not previously mentioned. In essence it provides for making the Research and Development Board an operating agency with complete top responsibility for the conduct of all research and development work in the Army, Navy and Air Force. Further, he would add outstanding civilian scientists (of the Bush, Compton, etc., type) to the RDB, making it completely civilian, with the officer members subordinate to the civilians rather than voting member as now. He said the selection of officers of course would be important and he had in mind people like Lt. General Hull of the WSEG, for example. I asked him whether, assuming his plan to be impractical, he thought well of the idea of creating a Scientific Adviser to the President or a Scientific Adviser reporting to the Chairman of the NSRB and he expressed himself as being generally favorable.
December 5, 1950

MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Vannevar Bush

I spent half an hour with Dr. Bush this afternoon in between two other appointments of his. We talked about the concept of a Scientific Adviser to the President, about the OSRD concept and about the National Science Foundation.

As to the idea of a Scientific Adviser to the President, as described elsewhere, he did not disapprove, and in fact expressed approval, but again, as in my previous meeting with him expressed doubt as to its feasibility in relation to President Truman. As before, his attitude here seemed to me to be subjective. But he did not oppose the idea. He suggested, as a counter proposal, that with some 15 secretaries and under and assistant secretaries in the three Services under the Department of Defense none of them was a scientist or technically trained man, and would it not be useful to have several scientists in assistant secretarial posts; if so, he said they could be the scientific advisers to the President. I agreed that this was desirable but that it could not be accomplished quickly, that very few scientists would have the practical characteristics to fill these posts, and that I would have them in addition to the Scientific Adviser to the President. They were not alternatives. For example, no one of them could reasonably be expected to be the stand-by nucleus of an OSRD, which is one of the two principal functions I visualize for the Scientific Adviser. He agreed, but as before lacks enthusiasm for the idea. I asked him for specific suggestions for a Scientific Adviser, if there were to be one, and he replied, "Oh, I could name a dozen of them." I asked him to name a few offhand, and he said, [Louis] Ridenour [Adviser to Secretary of the Air Force], [Luis] Alvarez [University of California], [Lloyd] Berkner [Carnegie Institution of Washington] and two others. I pointed out that he had not named DuBridge and asked whether this was intentional since his name had frequently been mentioned by others. He said well DuBridge was very capable but he did not think he was the man for this position. I then asked what he thought about having this individual be an industrial laboratory trained man rather than a university man, and said what about Dr. Mervin Kelly [Vice President of Bell Telephone Laboratories] for example. Well, he said, Kelly would certainly be one to be considered in that group.

As to the National Science Foundation, I asked whether, in the light of recent events in Korea and the indication that we should mobilize much more rapidly than heretofore, the NSF should not be kept down to a very limited amount of funds rather than the $10,000,000 amount or thereabouts which had been mentioned by some for Fiscal 1952. He said "yes, I would keep them down to a rate of say $200,000 a year and take another look-see at the end of six months or so. See what they are doing and how they plan to go ahead and decide at that time what additional funds to give them." He said that after the National Science Foundation was organized the AEC and the Office of Naval Research, etc., would turn over large parts of their basic research programs to the NSF. I said that indications were that no such thing would be done, that both Pitzer and Waterman had told me that they expected to turn over only a very small part of their current programs to NSF but that they had lots of ideas for additional work which NSF might underwrite. He said wait until the NSF is going and the Budget boys take the money
away from the other organizations and turn it over the NSF. I asked whether he thought this would be a good thing to do under present wartime conditions, and he said yes he thought it would be.

As to the war developments in Korea, he said he cannot yet appraise them. He does not think that we will pull out of there. I asked him whether he did not think we should pull out and he said well, maybe we should, but I don’t think that we will. He said that public opinion would not countenance the United States starting a war say by attacking with A-bombs regardless of whether this would or would not be a good thing to do militarily. He said if public opinion would countenance this we would no longer be a democracy. Getting back to the current situation he said that he thought we probably had two or three years in which to arm etc. He does not think that Russia is ready to “roll across the plains of Germany” or launch a general attack on Western Europe and he does not think they will do so at least for two or three years.
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Lee DuBridge

Dr. DuBridge and I spent two hours in a discussion here this morning following the brief one we had had some six or seven weeks ago. In addition to being President of California Institute of Technology he is a member of the GAC of the AEC, a member of the President’s Communication Board (or some such title) and during World War II was Director of the Radiation Laboratory MIT, a component of the OSRD.

As to Scientific Adviser to the President with functions previously defined he is now, as he was before, very definitely in favor. As to the creation of a new OSRD he is also in favor. It should probably be started soon with a few projects and evolve as conditions may dictate. As to what areas it should work in he did not have specific ideas but thought it could be justified principally on grounds of providing completely sheltered-from-the-military working conditions for many leading scientists who are eager to help and who can work much more effectively under conditions of great freedom. He pointed out that so far as bringing these individuals, perhaps roughly of the order of 100 for top people, into current organizations they are largely sealed at the top. That is, existing laboratories are already functioning and to bring people like Alvarez, just for example, in would require displacing the present head which is hardly practical. In general he regarded the field for this new OSRD as the long-range and long-shot ideas and also perhaps there would be a considerable field for them to work in on such matters as study of operational problems or other technical problems objectively... 

Specifically as to whether he would be willing to undertake the job as Scientific Adviser to the President if asked he said he would have to resign as President of California Institute of Technology in order to do it and this would be a very grave decision. I asked whether this Institute could not be operated by delegation with him spending only a very small fraction of his time on it and he said no it is not organized that way, the President really has to be there. There are about 1100 students at Cal Tech and about 1700 staff members, this unusual ratio evolving in part from the fact that the staff includes people working on certain Government contracts. As to other people, that is an alternative to be the Scientific Adviser, he thought Ernest Lawrence [University of California] was definitely not the man despite his great ability; as to Mervin Kelly [Bell Telephone Laboratories] he thought yes. He thought he is highly enough esteemed in the scientific world and very practical. He pointed out that he is a man of action and might make enemies but we agreed that the Scientific Adviser has to be regarded as expendable.

As to the National Science Foundation his first choice for Director is Dr. Wheeler Loomis. Loomis is somewhat over 60 year of age and was Assistant Director of the Radiation Laboratory at MIT in World War II, that is Assistant to DuBridge.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. James B. Conant

Dr. Conant spent an hour and a half with me this morning on the general subject of my precept but pointed specifically to the matter of Scientific Adviser to the President and the new OSRD. He left me the page proofs of the last chapter of his forthcoming book which he said are relevant and also some pencil doodlings on organizational ideas.

He talked somewhat historically about the OSRD, mentioning how they had to by-pass the National Research Council. He said he preferred to do his planning on the arbitrary assumption that maybe there will be no war for a year or more. Maybe there won’t be any war at all, but he didn’t seem very hopeful on this as he had been some three years ago when he expressed optimism that there would be no world conflict in the foreseeable future.

On the subject of Scientific Adviser to the President, and the new OSRD, he first spoke about preferring to “strengthen the RDB,” but how? He acknowledged that Bush and Compton are both industrious and competent people, but had failed to make much of a go of it. He agreed that probably Webster, whom he esteems, is doing a better job but he seems under no illusion that the RDB was performing only a very small fraction of the tasks that it had been hoped it could accomplish. Nor could he give any panacea. We therefore passed to other things to be done first at any rate. That is, he came to an agreement that we could not wait to remake the RDB in someway that would greatly improve its effectiveness in order to go ahead with any efforts that might be timely in the present mobilization trend.

Somewhat reluctantly, therefore, he felt that a Scientific Adviser to the President might be a useful device and might in effect be necessary because of the times; he showed a considerable practical awareness of these kinds of considerations—that is, the urge to take some action. He did not like the idea of the title of Scientific Adviser to the President however. He thought that it would put the occupant in the position of being fired at or appealed to by all manner of people and that virtually every scientist would feel impelled to write to him. He would need a large number of secretaries. He said if you are going to have such a person, he should have a committee of a few specialists in other main branches of science. That is, those in which he is not particularly qualified, both to advise him and to support him and when necessary act as a barrier or shelter between him and other scientists or scientific groups.

The Scientific Adviser to the President, or call him what one wishes, should be a younger man. He said not Conant nor Bush, and of course, not Compton because his health could not stand it. He and Bush shouldn’t try to do their same job again. They are valuable consultants.

1. Probably Science and Common Sense, which was published by Greenwood Press in 1951. (ed.)
As to whether the Scientific Adviser should be necessarily a full-time commitment or whether he should at least hold the title of his present occupation and perhaps spend a little time it: at first he said it would have to be full time connection, then he said well it is true that maintaining some connection with his present occupation could be useful. The fact that he was the President at Harvard and maintained that title and position added to his ability to perform successfully in the OSRD during the last war. He said immediately that DuBridge would be the man. When I asked him for some others he paused awhile then said, “Well, Dr. Julius Stratton of M.I.T. would be a good man,” and said that Harvard had been trying to get him away from M.I.T. in a polite manner. Stratton’s name had been mentioned to me by several others including Caryl Haskins and if I recall correctly, Dr. Buckley or perhaps Dr. Kelly of Bell Tel. I asked him what about a different type of man—one with an industrial research background—somebody like Mervyn Kelly, he said, “Yes, Mervyn Kelly would be a very good man for us.” He has an excellent standing as a scientist. However, he felt that the best man for this position would be one with a university connection because the principal source of personnel for success of OSRD would be the university. We agreed that the Scientific Adviser to the President must be regarded as expendable, or rather-must regard himself as that, although neither of us saw any reason why if he were well chosen he should meet any unhappy fate. As to a new OSRD again, he showed a certain kind of indifference. Someone like Bush, with whom he and Compton had created this organization in the last war, should be found. Again he had first said why not the RDB and the AEC between them figuring that the other ten or so Government agencies engaged research are relatively minor.

I expressed DuBridge’s viewpoint about these matters and about the significance of perhaps 100, or some such number, top-notch scientists not now engaged in significant amount of military work who could be far better employed in an atmosphere completely free of the military. Conant said that this was probably true with regards to research matters but he had his doubts about whether any such new agency should go into development work, that is, making of gadgets and selling them in three dimensional forms to the military and the like.

I said that it was clear to me that the new OSRD should be a very small enterprise compared with the old OSRD, that there might be a few specialized fields to exploit, certain kinds of operational studies for it to. And in general in a kind of wild manner its place might principally be in looking for military devices and more basic discoveries which would be applicable to only say five years or more in the future and that this could be the place for major discoveries in the event that either the war did not come within say five years or something such or that it were still going on at that., time. He agreed with this proposition. I further said that it seemed to me that it might start on a very small basis, let us say just a project or a few of them as they appeared and that there was no telling at this time how the agency or the new OSRD might evolve but that that may not be determined at this point. It should be left free for evolution as seemed best. I further said that it seemed to me that they should essentially be research workers only, that is pencil and paper workers, and with laboratory apparatus, but that they should not go into manufacturing because by now the atmosphere of appreciation of scientific work by the military was such that if they were able to demonstrate the usefulness of the weapon or scientific conception to the satisfaction of themselves and other scientists the military would very likely seize upon and proceed with the development themselves, which seemed quite appropriate to me. He agreed. He said that as long as they stayed in research he believed it was a desirable thing to plan for and to proceed with. We did not try to determine when it should be started, tacitly agreeing I believe that this depended upon the timing of projects. This I pointed out is what the Scientific Adviser might do.
He said upon an entirely different matter, since we rambled a bit that he had favored the May-Johnson bill versus the MacMahon Atomic Energy bill considering the latter a poor one. He thinks Atomic Energy matters are essentially military and should be under military cognizance. The AEC activities he said are almost entirely military and the present conception is wrong.

He spoke of the pressure of public opinion--with particular reference to the hydrogen bomb. He is a member of the General Advisory Committee to the AEC and of course was active in the early work on the atomic bomb. We spoke a bit about Carroll Wilson and he said that he imagined the manner of Carroll Wilson’s leaving the AEC pretty much precluded his doing anything in the Government at the present time. He said that he thought Caroll Wilson should either have said more or less at the time of his leaving. I think he indicated that he had said this to Carroll.

He said he would be very glad to talk about this further and said that he would be in Washington again.

We talked a bit about the National Science Foundation. He would like to see the “new OSRD”, discussed above in the Department of Defense, perhaps reporting to the Secretary of Defense on a pari-parsu basis with RDB. This was after he suggested and then abandoned the idea of putting it in RDB itself when I pointed out that this would put the latter in position of both judge over the three services and operator on its own; and anyway with RDB still so far from success in its basic job why should it be expected to capably perform this other one too. He spoke of the importance of basic scientific research work for the long term future, etc. He had some hopes for the fellowship and scholarship program but seemed to recognize that under present mobilization conditions it would be illogical to expect additional funds to be allocated to the NSF for the support of additional basic research work. That is, anything in addition to what it might take over from other going concerned agencies like the Office of Naval Research, AEC, etc.

He said he would be glad to talk further about all these matters and said he would be in Washington again for the National Science Foundation’s next meeting on January 3, and staying along through the General Advisory Committee meeting on the 6th if I remember correctly.

William T. Golden

2. The May-Johnson bill, introduced by Representative Andrew May of Kentucky and Senator Edwin Johnson of Colorado, would have confirmed the War Department’s existing control over all aspects of nuclear energy developments. The bill was supported by Bush and Conant. The rival MacMahon bill, which was introduced by Senator Brien MacMahon of Connecticut and enacted into law in 1946, established civilian control over nuclear energy by creating an Atomic Energy Commission headed by five presidentially-appointed commissioners. The MacMahon legislation was supported by a group of activist scientists (mainly physicists) whose lobbying efforts were organized by the newly established Federation of Atomic Scientists. (ed.)
December 17, 1950

MEMORANDUM FOR THE FILE

SUBJECT: Conversation with General Leslie R. Groves

I had breakfast with General Groves on Saturday morning, December 17, at the Biltmore in New York and we spent two hours in a general discussion. He was sailing that afternoon for France on the LIBERTÉ on a business trip which will keep him away for about a month or so.

As to the Scientific Adviser to the President and ultimately a new OSRD of some kind, he said yes he is in favor if a practical man of competent business-type judgment can be had for the Adviser. He suggested as possibilities Dr. Charles Thomas of Monsanto, or Lyman Bliss, of Union Carbide, each around 50 years of age. He said Charlie Thomas would be fine if one could get him to cut off everything else, which as a practical matter he thinks he will not do because apart from his extracurricular activities he is scheduled to become President of Monsanto. As to Lyman Bliss, he said unfortunately he does not stand high as a scientist. He also mentioned Murphy of Standard Oil Development, but excluded him because he said he takes on too many things to be able to finish them. He spoke most enthusiastically of Greenewalt of Du Pont but said of course you could not get him.

He urged that I talk with [Crawford] Greenewalt [President, Du Pont] Company. Generally he recommended that I talk with the following and rely heavily upon their judgment. He thinks very highly of all of them: Conant, General [K.D.] Nichols, Bliss, Greenewalt, Thomas. He said one could get very good ideas on people, etc. from them. Conant he said tends to like committees rather than individuals—this is referring to the Scientific Adviser to the President idea.

He spoke of Ernest Lawrence [University of California] and said he is absolutely tops for advice but that he does make mistakes. He does have a very high batting average however. But he wouldn’t take all of his many ideas. He regards him as brilliant but not the man for the Scientific Adviser to the President job.

He said that Bliss is a little more courageous than Greenewalt. He spoke of [M.H.] Trytten of the National Research Council and regards his ideas as a menace, for he says that Trytten believes in supporting all science students free forever out of the public treasury and Groves is very much against such paternalism. He regards Trytten as clever and one who regards the end as justifying the means.

He recommended that I talk with Dean Sam Arnold (he was not quite sure of the name however) of Brown University, on scientific manpower matters, mentioning his, Groves’, name if I wished to do so. He regards him as very sound and has very great respect for his character as well. He is a classmate of Conant’s.

As to Oppenheimer, he says he is brilliant, but one should be careful in following his judgments. He clearly respects him and it seems as though their relations are reasonably satisfactory.
He spoke of Rabi and Bacher as having prevented his uniforming of scientists at Los Alamos, which he clearly still resents.

He asked that I write his secretary and ask her to let me know when he returns, since the date is uncertain, so that we can talk again.
EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON 25, D.C.

December 19, 1950

MEMORANDUM FOR THE FILE

SUBJECT: Telephone conversation with Dr. James R. Killian, Jr., President of MIT

Dr. Killian called me on the telephone from Boston this afternoon to report on the meeting of the ad hoc group under the auspices of the RDB that was held last Saturday [Dec. 16] morning. I previously had reports on this from Henry Loomis of the RDB, from Dr. Mervyn Kelly [Bell Telephone Laboratories], and from Dr. Bob Robertson, all of whom were present. Although Dr. Kelly was specifically delegated to tell me about the meeting, apparently the other individuals felt called on or a desire to do so in addition.

Dr. Killian said that he would send me, in the near future, what he called an anonymous document which recorded the sense of the meeting. He had apparently been delegated to draw this up and to send me a copy. He will include names. For fuller details on this meeting see my memorandum of December 18, comprising notes of the report to me by Henry Loomis. There was present in the meeting, in addition to Webster and Loomis of the RDB, most of the members of the “Killian Review Group of the RDB,” plus a number of specially invited additions as listed hereafter: The Killian review Group consisted of Killian, Bronk, Kelly, DuBridge, and [Merle] Tuve [Carnegie Institution of Washington]. ([Fred] Hovde [Purdue University] and R. E. Wilson [Standard Oil Company], also members of the group were not present.) Others present by invitation were: Dr. H.P. Robertson, WSEG, Dr. Karl Compton of MIT, Dr. V. Bush, Dr. Irvin Stewart, and Dr. Jerome Hunsaker of MIT and the NACA, and Dr. Berkner [Carnegie Institution of Washington].

In reply to my question Dr. Killian said that Oppenheimer’s name was included among those on the list, apparently it was mentioned after Dr. Kelly left the meeting.

I took this opportunity to get more clearly in mind than I had before the matter of whether a scientific adviser to the President, specifically with that title and in that capacity, was quite agreeable to this group, or whether they wanted some less formal or less close relationship. This had not been completely clear to me from Henry Loomis’ report. He said that they would very definitely be pleased with a scientific adviser to the President, as such, although they did not feel that the precise degree of relationship was vital. He said that they did regard it as important that this man, the scientific adviser we shall call him, although he did not care about the title either, should be the rallying point of the sample of representation of the scientific community and that he should have access to the President when necessary. They did not care whether he was called adviser to the President, as such, or not. I told him that I was very close to making this specific recommendation, which he and the group clearly knew from my talks with a considerable number of them individually.

1. “Memorandum for the President, ‘Mobilization of Science for War: A Scientific Adviser to the President’” (ed.)
He also said there had been some discussion about a committee of one kind or another to this individual leader, but there had been no definite decision as to what the relationship would be. One such suggestion was that the committee should be of three people consisting of the chairman of the RDB, the chairman, or president rather, of the National Academy of Sciences, and the chairman of the National Science Foundation. But he said that neither he nor the meeting as a whole felt convinced that this was desirable. That is, it did not seem necessary to formalize the availability of these people in a committee. At any rate, he agreed, when I put the question that way.

He did say there was a definite feeling that representation should not be of the physical sciences exclusively; that is, there was a genuine recognition of the growing importance of the social sciences, in particular of the interrelationship of the social sciences with the physical sciences. He referred specifically to the Troy Report now under way as a project at MIT. Dr. Berkner, as I recall, is working on this and I shall ask him about it when I see him. Dr. Killian spoke very highly of Berkner.

I told him of my conversation with Dr. Conant and asked whether he had yet talked with him since Conant was not at the meeting, and he said no, but he intended to do so in the very near future.*

He will be in Washington the beginning of January.

William T. Golden

*(Handwritten note in margin “Not done up to 5 p.m. Dec. 29 when I spoke to Conant on phone.”)*
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Theodore von Karman.

Dr. H. P. Robertson having especially urged me to do so I yesterday afternoon called on Dr. Theodore von Karman at the Pentagon where he is spending a few days on one of his periodic visits. He is Chairman of the Scientific Advisory Board to the Chief of Staff of the Air Force and is of course a distinguished scientist of international repute and achievement. He is a professor of aeronautical matters at California Institute Technology. He is about 70 years of age but looks and behaves in a sprightly manner far less than his years. And I had a most interesting and delightful visit with him.

He agrees enthusiastically on the idea of a Scientific Adviser to the President and fully on a new OSRD-type organization as defined in my Memorandum to the President of December 18, 1950, which he read in my presence. He also read and retained a copy of the unclassified October 19 Memorandum to the President constituting my basic precept.

As to names for the Scientific adviser he suggested DuBridge and Oppenheimer. I asked him about Kelly and he spoke very favorably of him, returning to it from time to time and nodding and saying, yes, Kelly, a very good idea. He mentioned also names of Rabi and Bronk but discarded them for various reasons.

He gave me a copy of a one-page memorandum dated December 19, which he had given to Deputy Secretary of Defense Lovett the previous day. In this memorandum he proposes the establishment of a scientific liaison unit to be attached to General Eisenhower’s staff in the Supreme Command of the European Army. The idea is described in the memo filed under his name and is based on the existence of research and development commands in each of the military departments of the friendly European nations and on his belief that valuable brains and laboratory facilities exist here and that effective work is being done which it would be worth our while to know more about, and further which could perhaps be directed into more useful channels or modifications if a regular channel of intercommunications existed. His thought is that a few scientifically trained officers plus a few civilian scientists, preferably more mature ones who had passed their productive period but would be especially valuable for this kind of liaison work, should be established as indicated in General Eisenhower’s command. The security problem would of course be a difficult one, or rather one which would have to be very carefully born in mind. He would like to discuss this with Eisenhower whom he has never met. He said he had talked with General Phillips, the USAF Secretary in the RDB, about this matter and it intrigued the latter considerably. I suggested that he ought to talk with Robert Oppenheimer and Bob Robertson and Under Secretary of State Webb.

While I was in the office Colonel Balchen, a polar explorer, came in and we talked briefly. He said he is now stationed in Alaska in the Air Force. He had been very active, I was told this morning by Dr. Lloyd Berkner, in the Norwegian underground movement during World War II and had played a part
in the blowing up of the heavy water plant during the Nazi occupation. He also had some relationship to a Norwegian airline at one time.

In connection with the scientific liaison matter mentioned above I suggested to Dr. von Karman that [Atomic Energy Commissioner] Lewis Strauss might be interested and that young Lewis H. Strauss might be a person to attach to the staff, either in a military or a civilian capacity in view of his scientific studies and particularly the fact that he was a member of the technical mission which went to Europe in the latter part of World War II. He spoke very highly of Lewis Strauss whom he knows quite well.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Conversations with Drs. Oppenheimer, Robert Bacher, and Charles Lauritsen

Last night I had dinner and spent the evening with Robert Oppenheimer, Bob Bacher and Charles Lauritsen, the last named is at Cal Tech and I recalled the work he had done which had gained him such esteem at BuOrd in the last war, particularly with respect to rockets but also with respect to other ordnance matters.

Scientific Adviser to the President. We had a long and recurrent discussion on this, Oppenheimer taking a position against it, though eventually agreeing that he had no objection to it, saw no particular danger if a good man were selected, but had no enthusiasm for it. He was invited to but was not present at the sanhedrin held under RDB auspices last Saturday consisting of the Killian Review Group, with augmentations, which group had come out completely in favor of a Scientific Adviser to the President concept and a new OSRD of some kind at some time. He was influenced in his final judgment by the trend of the times toward mobilization, etc. He had no confidence that any one man could have a comprehensive knowledge of even the major directions of military research and development but on the question of whether a man could not exercise judgment upon presentation of evidence without having expert knowledge of the subjects under consideration he did not express such strong disapproval. He could not explain the great popularity of the Scientific Adviser concept both as expressed individually and by the previously mentioned group. Bob Bacher did not speak one way or another on this though it will be recalled that he has repeatedly been very much in favor as has Lee DuBridge, the President of Cal Tech. Lauritsen’s views were generally similar to Oppenheimer’s though I got the idea that his ideas on organizational matters are not well developed, that is that distinction in scientific fields does not carry over into the managerial one. Toward the latter part of the discussion Lauritsen suggested the notion of a Cabinet post of Chief Scientist, or something of the sort, which has been mentioned by other scientists from time to time. Oppenheimer recognized the fantastic character of this suggestion, pointing out that there was no department to be covered by such a Cabinet officer, nor could there be, etc. We returned then to the Scientific Adviser to the President, he describing the concept as one of a sort of Minister without Portfolio and speaking rather favorably on this conception.

“A new OSRD” Oppenheimer was inclined against this, particularly on the grounds that there would not be very much for it to do he thought, rather that the work could be performed by existing organizations, or at any rate why not wait and see. But he was not strongly opposed either.

National Science Foundation. They have all been somewhat worn out on this but would very much like to see it become effective, being fearful of its possible political flavor. However they spoke somewhat about (a) its fellowship program and (b) its grants or other support program. As to fellowships, Oppenheimer said in response to my question that perhaps they could grant 500 pre-doctoral and 500 post-doctoral fellowships per year. That is a total of about 1,000, and using a rough figure of $3,000 each, which is high I think, in terms of the usual rule of thumb this would come to $3,000,000 per
annum, or perhaps somewhere approaching $6,000,000 if some of these fellowships were to be for say 2 years. He thought that such a fellowship program in addition to existing ones could be very helpful. He stressed the importance of training new scientists. He and the others were very strong on this and pointed out that fellowship programs would tend to involve some-training of juniors as well. As to the grants and other support of basic research they urged that this was very important, Oppenheimer, being particularly strongly of the opinion that research in this country had never recovered from the diversion to applied fields that basic research had suffered because of World War II. All of them agreed. They felt that substantially more basic scientific research should be supported. They were not specific as to amounts of money involved and when I tried to get a definition of what areas of research should be supported and the like this was not forthcoming either. They pointed out that the Office of Naval Research and the AEC particularly received many more proposals for projects than they were able to finance and the National Science Foundation could very effectively make its selection principally or at any rate initially from such proposals. They did not react favorably to the question of whether it would not be possible to make a kind of overall tabulation of the areas of basic research being covered and not being covered etc. Oppenheimer characterized the field of basic research as an essentially limitless universal field with expanding boundaries getting further out as one approached them.

Reverting to the matter of the Science Adviser to the President Oppenheimer on several occasions said that he doubted the possibility of any individual having a synoptic comprehension of all the research programs. He liked the word synoptic. I asked late in the evening and there was some discussion of who the Scientific Adviser to the President should be, or call him what one wishes, if there is to be one. Bronk was talked about in his capacity as President of the National Academy. There were no strong recommendations. I brought up the question of the industrial research laboratory type as opposed to the university type and there was some discussion, not unfavorable. I said someone like Charles Thomas [Monsanto Chemical Company] or Mervyn Kelly [Bell Telephone Laboratories]. Dr. Kelly’s name evoked some very enthusiastic comments. He apparently stands very high among those who do not figuratively wear the class ring, that is those who are not of the university group, even though both he and Thomas are members of the National Academy. It is clear that he is esteemed very highly by Oppenheimer and also by both of the others and it was my impression that the appointment of Kelly would be well received though they would doubtless prefer a university man. We commented on the volume of his work and they said that he seems to be working himself to death although he does not look as badly they said as he did during the war.

National Academy. They all spoke very highly of Dr. Bronk’s efforts to revitalize the National Academy, approving both of the effort, of the results to date and of Dr. Bronk personally.

Productivity of Government laboratories. We had some discussion of this subject which Bob Bacher had brought up some time ago but without reaching any conclusion. It was felt definitely that the productivity varied considerably and that a study on a comparative basis of some kind would be fruitful but we did not press through to any tangible conclusion of what to do or how other than that this was an RDB responsibility.

Research and Development Board. There was a great deal of talk about this. The three of them were much concerned about its effectiveness and survival and in very great sympathy with Bill Webster’s position. It is evident that they all feel some kind of fraternal responsibility in effect to support Bill Webster in his very difficult task and to try to make the RDB a more effective instrument. It is clear that they are all aware of its very fractional value. It was stated that Dr. Lloyd Berkner was very much responsible for the initial organization of RDB but it was said, sort of despite this, he has everyone’s confidence. It seemed that their feeling was that the initial blame for faulty practical conception and bad
organization lies with Berkner and that Bush just should have known better. As for Compton, they felt that he just carried on and that his health and perhaps his temperament did not permit him to make any changes at all although it was evident that the conception was faulty as was the execution. They fear literally the collapse of the RDB. I commented to Oppenheimer as we left that I expect no such thing if only because the RDB is not carrying enough weight to be susceptible of collapse but it was agreed that it does appear to be gradually losing ground as the research and development programs become much bigger and it is getting engulfed. We agreed that Bill Webster’s recent efforts were ameliorative but not sufficient to markedly change matters. Oppenheimer agreed that some major organizational change is probably necessary. He agreed that the budgetary function is a necessary one and that this information can make an important contribution to the scientific conduct of the RDB’s work and nodded very approvingly at the thought that if this section could be separated out it could parallel but not interfere with the scientific efforts it would be a very good solution.

William T. Golden
Impacts of the Early Cold War on the Formulation of U.S. Science Policy

Selected Memoranda of William T. Golden
October 1950 – April 1951

Conversations: 1951
EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON 25, D.C.

January 5, 1951

MEMORANDUM FOR THE FILE

SUBJECT: Meeting with Conant, Stauffacher and Staats and Carey and Levi at Bureau of the Budget

Purpose was to try to resolve differences between National Science Foundation and practically all others – following call of Conant (Ch), Fred (V.Ch) and Bronk - (Ch. Exec. Committee) on Staats on evening of January 3, at conclusion of National Science Foundation meeting.

He restated that National Science Foundation Board was fearful that a Scientific Adviser to President would tend to debase National Science Foundation. No vote taken and there were dissenters. Conant’s own views were not so extreme. He made it clear that his own views were as expressed to me previously (see memos) but that he had duty as Chairman of National Science Foundation to convey majority’s views.

Discussions for an hour. Somehow National Science Foundation needs a National Defense label to get appropriations and manpower (and hold off General Hershey)\(^1\) and keep its Board happy. I had previously suggested to Staats (in line with Killian Group recommendation) that a Scientific Adviser to the President be created and that he have a committee (could be called for in Executive Order or President’s letter) consisting of Chairman or Director of National Science Foundation, Chairman of National Academy and Chairman of RDB plus perhaps others. He tried this out on Conant and the latter agreed - and suggested that perhaps Chairman of GAC to AEC (Oppenheimer) be added. All agreed a good idea. Question open as to whether Scientific Adviser to President should be that or Chairman of a Mobilization Research Committee or some such title.

Conant said, “don’t institutionalize it” and Staats changed his preference for an Office of Scientific Adviser to the President to just an individual and/or a Committee. Conant volunteered that best man would be DuBridge and he believes he’d take it if offered.

I informed Webster of the foregoing on the phone. We had been closely in touch on recent development.

William T. Golden

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1. Major General Lewis B. Hershey, Director of the Selective Service System. (ed.)
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. I.I. Rabi

Dr. Rabi telephoned me on his own initiative from the General Advisory Committee (GAC - to the Atomic Energy Commission, AEC) meeting to say that he had just returned from his trip to Europe and was greatly disturbed by the lack of inclination to fight which he observed over there and wanted to reiterate the importance and urgency of naming a Scientific Adviser to the President. He came over to see me late in the afternoon. And saw me again briefly at the Statler after dinner.

He thinks the United States must, as first priority, concentrate on defensive scientific developments as well as production such as radar, communications, anti-aircraft, antisubmarine etc. Thereafter we should get to new offensive developments. He thinks we cannot count on the Europeans. They have no will to fight. They fear war. He spent a week or two in Sweden and Denmark (with Bohr principally) and two weeks in Paris. He did not go to Germany. He says that the Europeans are very fearful of the Russians but are fearful of the United States also, though to a lesser degree. The latter he says is because they are afraid that “the U.S. will get them into war.” He said that the sophisticated individuals in France talk anti-U.S.A. on the theory that this is the safer course for, they reason, in the event of war the U.S. will be easy going with them if they win whereas if the Russians conquer western Europe their only hope is to be known as anti-American by prior record.

As indicated the purpose of his call was to urge the creation of a Scientific Adviser to the President. I told him of the National Science Foundation - Conant development of which I had learned this morning and he told me more about it when he came over to my office. He had spoken with Conant, DuBridge and Oppenheimer, all at the General Advisory meeting. He said that Conant’s presentation to Staats the night before reflected the view of the National Science Foundation but, he commented, the members of that Board are mostly not scientists. DuBridge he said is still strong for a Scientific Adviser to the President and was just talked down at the National Science Foundation meeting. Oppenheimer is for a Scientific Adviser to the President but shows no great enthusiasm.

Rabi greatly respects DuBridge (he worked under him at the Radiation Lab of OSRD) and strongly recommends him for Scientific Adviser, as he had at our previous meeting.

Between our late afternoon and our after dinner conversation Dr. Rabi had dinner with DuBridge, Buckley and others of the General Advisory Committee and he told me afterward that he thinks DuBridge would take the Scientific Adviser to the President job if the President asked him to do so and if he were not required spend absolutely full time on it.

He thinks very highly of Killian not so of Conant. He thinks highly of Kelly but not for Scientific Adviser to the President. He greatly admires Oppenheimer but not for Scientific Adviser to the President.
The story seems to be that the National Science Foundation Board prepared its slate of more than 8 names for Director which Conant will present to the President on Friday, January 5. Waterman was eighth or so. Hafsted was way down - or maybe not on the list at all. But Bronk said he would take the job only if the military stuff were included (apparently based on the permissive military paragraph in the Act). This seems to be the reason for opposition to an independent Scientific Adviser to the President by the National Science Foundation, but this should become clear when I meet with Conant, Staats and Stauffacher on the morning of Friday, January 5.

William Golden

Spoke of GAC. Used to be more effective. The GAC recommended to AEC slate of 3 replacements for last 3 vacancies – including Bacher. But none of their recommendees was appointed.

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1. Waterman’s was the seventh of ten names; Lawrence Hafstad of the AEC was not listed. (ed.)
2. Section 3 (a) 3 stated that one of the functions of the Foundation is “to initiate and support specific scientific research activities in connection with matters relating to the national defense. . .” at the request of the Secretary of Defense. This paragraph was deleted in a subsequent amendment to the Act. (ed.)
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Lee DuBridge

Dr. DuBridge called me this morning and asked me to have lunch with him, which we did for about an hour and a half at the Pentagon. On his mind were the events of the last few days concerning the National Science Foundation directorship and the creation of a Scientific Adviser to the President.

Dr. Conant had spoken with him after he, Dr. Conant, had called on the President, and told me of the interview in which Dr. Conant, obedient to the instructions of the NSF of which he is Chairman, presented first the name of Dr. Bronk and, as I was told, that the President nodded approvingly and carried the ball from that point. DuBridge, who is also a member of the NSF, made it quite clear, even clearer than Dr. Conant himself had done in his rather guarded comment when he met with Messrs. Staats, Stauffacher, and myself etc. on Friday just before his call to the President - he made clear that Dr. Conant’s own views were considerably different from those of the sense of the 24-man board. As DuBridge put it, “things just snowballed.” Apparently, therefore, Dr. Conant as Chairman did not have the meeting under as close control as one might have looked for. His task was complicated, of course, by the relations between him and Dr. Bronk growing out of the action of the National Academy last spring and by the general acclaim for Dr. Bronk as a person.

At any rate, the Board agreed on a slate of 10 names and instructed Dr. Conant to present the first three and then in his judgment if none of these subsequently proved suitable to the President, to advance a second panel of four, and then apparently finally the additional three. The first three names were Bronk, L. Baird Hastings of Harvard, and Lloyd Berkner [Carnegie Institution of Washington], in that order. As I was previously informed, Bronk had said that he would take the job only if it encompassed military scientific activities as well. DuBridge was quite clear about the incompatibility of programmatic military research for the purpose of the National Science Foundation, and his views and mine are completely in accord. He also said that Dr. Conant was pretty clearly of these views. He told me that there is a trustees meeting of Hopkins being held today at which Dr. Bush will be present, and which he thought it quite possible that Bronk would discuss these matters with the trustees.

DuBridge has been urged by many people to undertake the Scientific Adviser to the President if he is asked to do so. It would be very difficult for him, however, to devote more than half his time to this undertaking. He probably could devote about half his time to it, primarily by dropping off virtually all other non-Cal Tech activities, but beyond that would involve some major arranging. I learned from other sources that he has some difficulties with his trustees and apparently it would be no simple matter, both by reason of the trustees relationship and by reason of the status of his organization, for him to devote, say, 90 percent of his time to it.

I brought up the committee matter and mentioned that, after suggesting that there be an advisory committee to the Scientific Adviser or perhaps that he be chairman of a defense scientific committee to
the President or something such as that, there be a supporting committee consisting of, say, the Chairman of the Research and Development Board, the President of the National Academy of Sciences, and the Chairman or Director of the National Science Foundation. I mentioned that Conant had indicated approval of this thought, his indication being reinforced by his suggestion at his meeting with us at the Budget Bureau last Friday - by his suggestion of the addition of the Chairman or the General Advisory Committee of the AEC (Oppenheimer). DuBridge expressed full approval and said it might be well to add Mervyn Kelly [Bell Telephone Laboratories] to the committee. I asked him why, and he said, well as a representative of industry and that he was very highly esteemed. Then he also said that General Saville, RDB member from the Air Force, had, in discussing this general subject with DuBridge within the last few days, said that there ought to be, say a 3-man group, of whom one should be DuBridge, another Kelly, and the third he was not sure. DuBridge also suggested that possibly there should be a full-time executive officer who would spend full time in Washington, and that this executive officer might, for example, be Dr. Wheeler Loomis [former Assistant to DuBridge at MIT Radiation Laboratory].

William T. Golden
January 19, 1951

MEMORANDUM FOR THE FILE

SUBJECT: Conversation with General Lucius Clay

I spent three quarters of an hour with General Clay this morning, being joined after the first few minutes by Charlie Stauffacher. Clay and Sidney Weinberg are the Assistants to Charles E. Wilson, Director of Mobilization. Stauffacher had arranged the appointment and had had a brief preliminary conversation last week.

I described the three segments of my study and the conclusions I have reached on National Science Foundation and “Scientific Adviser to the President” matters, and stated that as to the third matter, the Research and Development Board, I had certain tentative judgments under way but was not yet complete.

He said he was interested in National Science Foundation and I therefore stated briefly my judgments as to the nature of the work it should undertake and that which it should not undertake, as more fully described in my memorandum thereon.

The balance of the discussion had to do with the functions and substance of the Scientific Adviser concept. He expressed agreement on the functions and the necessity for organizationally fulfilling them. At one point he spoke about the need for a Coordinator of Scientific Research and Development and I pointed out that this was asking for perhaps too much in the light of RDB experience and if that perhaps this individual could function more effectively through influence rather than through a closely defined bill of authority. We did not seem really to differ on this. He spoke of the need for eliminating duplication and I said I agreed with him on that except for planned duplication which he accepted also but said that the avoidance or omission of important areas was an even greater need. There was no lack of agreement actually on this whole area.

However, he stated that he did not like the title, Scientific Adviser to the President, and more specifically that this individual and his staff or committee should be located in the Mobilization Office of Mr. Wilson, and that this Scientific Adviser should be called an Assistant to Mr. Wilson for Scientific Matters, or something of the sort, just, he said, as he and Weinberg are called Assistants. He regards scientific matters as falling absolutely within the purview of mobilization activities for which Wilson is deemed to have complete deputization from the President.

In discussing names of individuals, Stauffacher and I bringing up those of DuBridge and [Mervyn] Kelly [Bell Laboratories], he spoke of Bush, Conant and [Karl] Compton [MIT] in passing with admiration.

It was agreed that Stauffacher would arrange a further discussion next week after all of us gave further thought to the matter.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Detlev W. Bronk

I called on Dr. Bronk at his request to discuss several matters with him.

As to the National Science Foundation, he expressed accord with my memorandum [February 15 “Memorandum of Program for the National Science Foundation”] and made the interesting comment that he was glad that it had been possible to bring the Board around to recognizing that it should stay out of defense or other applied research matters and stick to basic research interests. See the Press Release after their recent meeting which DuBridge told me he had written.

With respect to the Research and Development Board, he wanted to know my views about “strengthening it,” and I expressed them discursively. He told me of a contract between the National Research Council and the RDB (details not clear to me) whereby the NRC will do work for the RDB. The metallurgical group, including Carl M. Loeb, Jr., which met a few weeks ago under NRC auspices, is the first tangible item under this relationship.

He asked what I thought about his calling a meeting at the beginning of April of representatives of each of the 97 member bodies of the National Research Council, for which he would arrange a program of informatory talks by such people as the Chairman of the RDB and other dignitaries. I said it would be fine if there were something definite to say, but the immediate present did not seem like an appropriate occasion unless he wanted to have just a gab fest. I thought it would be excellent to have such a meeting if properly organized and programmed after the appointment of an Advisory Committee on Defense Scientific Research so that the chairman of this group could address the NRC committee representatives.
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Oliver E. Buckley

I had lunch with Dr. Buckley in New York on Lincoln’s Birthday and spent the afternoon with him in a discursive discussion. This was at his suggestion as an alternative to telephone conversation. It was Dr. Kelly’s decision not to accept the chairmanship of the Advisory Committee on Defense Scientific Research which impelled me to wish to talk with Dr. Buckley again at this time.

He said that Dr. Kelly genuinely feels that he is more effective as an “operator” rather than as a committee chairman and policy determiner. He told me that he (Buckley) was asked to be chairman of the RDB to succeed Compton, but declined for compelling personal reasons at the time. We had some discussion of the possibility of an older individual serving as chairman of the Advisory Committee on Defense Scientific Research if an ideal younger man were not available.

He spoke of Dr. Karl Compton’s report of his October conference on the RDB matters and he particularly spoke of [Crawford] Greenewalt’s [the Du Pont Company] sharp dissent. He esteems Greenewalt. He spoke of the Killian group’s ideas on RDB reorganization, although not in detail as he did not seem to be familiar with them.

The following morning he called me at home to ask whether I would have any objection to his discussing the subject of our discussion with the Council of the National Academy of Sciences which was meeting in Washington on Saturday night and Sunday [March 3-4]. He said he just wanted to discuss the matter in general terms, and I said that I knew of no reason not to discuss it in such a manner and left that entirely to his judgment. I had given him some papers to read and return to me and he expressed some comments of disagreement. His principal disagreement seems to have to do with the details of how the Advisory Committee and its chairman are to function.

At lunch he asked me whether I had any ideas to an individual who might serve as President of the National Multiple Sclerosis Society of which he is Vice President and in which he is very much interested as someone in his family is suffering from it mildly. . . Ralph Straus of the Macy family is President of the Society but wishes to resign since he is abroad for the U. S. Government on an ECA mission or something of the sort in Paris I believe, and has been abroad for a year or thereabouts and is likely to stay there. Straus’s interest also comes about through some member of his family being afflicted. Buckley says that he is doing as much as he can as Vice President, has no desire to be President, and would like to find a live-wire who would undertake the job. . . I asked Dr. Buckley to send me some papers describing the Society’s work and naming some of the people associated with it and said that I would try to think about someone who might wish to take on the Presidency, which clearly requires the attention of someone who is willing to do fund-raising as well as organizing of information, distribution, etc.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. J. Robert Oppenheimer

In view of recent developments in my conversations with Drs. Kelly and Buckley it seemed appropriate to talk again with Dr. Oppenheimer and I therefore called on him at the Institute for Advanced Study at Princeton, spending from noon until 4:00 p.m. with him.

First we talked about a matter he has been asked to undertake by Louis Ridenour and Secretary of the Air Force Finletter, which he has under consideration. He told me that he had talked with Bernard Brodie [Professor of International Relations, Yale University] several times within the last few days when he was in Washington. He also attended a meeting of the Council of the National Academy of Sciences on Saturday night and Sunday [February 24 and 25] and Dr. Buckley spoke with him privately during that period as well as at the Council meeting.

We talked briefly about the National Science Foundation, he being aware of and gratified that the Foundation had swung around to a decision to keep out of the defense and other applied research business. We also talked somewhat about the Research and Development Board, but inconclusively. The principal talk had to do with matters related to an Advisory Committee on Defense Scientific Research to which incidentally Mr. Charles Wilson had devoted a paragraph in his Friday [February 23] night radio speech which was reported in full in Saturday’s New York Times.¹ I shall not attempt to report the conversation in detail but we covered the subject rather thoroughly. I told him of Kelly’s refusal of the Chairmanship; he esteems Kelly very highly. I also told him of the Thomas matter² and we recognized that any conversation might prove academic subject to Thomas’ decision, although depending on the latter there were still questions of committee composition, function, reporting etc. which would be germane.

As to the Committee, he thought about names of possibilities for the chairmanship after we discussed qualifications and he also brought out the list of members of the National Academy and looked through that. It seems pretty clear that barring Charles Thomas consideration must be given to a part-time Chairman with a competent full time Executive Secretary and we discussed this aspect a bit. On such a basis there would be a wide field of choice for Chairmanship, that is on a part-time basis. As to the full-time Executive Secretary, thinking was in terms of someone like Larry Hafstad [Atomic Energy Commission] or Dr. Alan Waterman. Incidentally, going back to the National Science Foundation

1. The February 24 edition of the New York Times featured the radio address on its front page with the headline, “Wilson Ties Safety of Free World to Vast U.S. Output.” In the paragraph Golden refers to Thomas’ statement: “The mobilization efforts of science and research will be centered in an Advisory Committee on Defense Scientific Research to be created by the President. I am confident that the group of scientists, already set up to do this work, will be as successful as they have been in the past.” (ed.)
2. Charles Thomas, Vice President of the Montsanto Chemical Company, was sounded out about his availability for the chairmanship of the SAC following Kelly’s refusal, but declined to accept. (ed.)
matter, Oppenheimer thought that either Dr. Roger Adams or Dr. Alan Waterman would be excellent choices for the Director. He also mentioned Hugh Dryden [Administrator of the National Advisory Board on Aeronautics] as the kind of person who might be quite effective as the full-time Executive Secretary.

As to the size of the Committee, he thought that anything short of 20 would be all right and that 12 would be by no means too large a number. This seemed to be his idea offhand of the optimum number. As to names, the following were mentioned: Oppenheimer, DuBridge, [W. Albert] Noyes [University of Rochester], [Alan] Gregg [the Rockefeller Foundation], Bush, Conant, Kelly; the foregoing were ones which I mentioned. Then he went on: [Charles] Lauritsen [California Institute of Technology], [Crawford] Greenewalt [the Du Pont Company], [Jerrold] Zacharias [MIT], Rabi, George Beadle and/or Wendell Stanley, both of whom he described as very great biologists; the former is of Cal Tech, formerly of Stanford. Stanley is the discoverer of the tobacco mosaic virus. To be continued: [John] von Neumann [Institute for Advanced Study], [George] Kistiakowsky, the [Harvard] physical chemist; and Clark Millikan [Cal Tech] or von Karman. He spoke very highly of Greenewalt, which was interesting in view of the latter’s industrial rather than scientific distinction. The foregoing names were not meant be exhaustive but were rather offhand. He pointed out that there was a very large field to select from for membership on the Committee.

He asked about the relationship of intelligence and wondered whether among the ex-officio members whom I had named General [Walter] Bedell Smith [Director, Defense Department Intelligence Agency] should not sit. There was also talk about the relationship of this Committee to the National Security Council and to the Joint Chiefs of Staff. He pointed out that of the latter two organizations should perhaps be the principal consumers of certain of the Committee’s recommendations. Much of our talk was about the function and functioning of the Committee and was of a rambling rather than a conclusive nature.

I said I would post him on the outcome of the Charles Thomas discussion and we agreed to talk again as might be appropriate. He mentioned, incidentally, that he knew Charlie Thomas very well, that the latter had been at Los Alamos for a large part of the Manhattan District time and that both of them had sat on the Acheson — Lilienthal Report committee.3

William T. Golden

3. This report was prepared in 1946 under the joint responsibility of Dean Acheson, then Undersecretary of State, and David Lilienthal, first Chairman of the Atomic Energy Commission. It provided the basis for the so-called Baruch Plan, although only after substantial revision. According to the terms of the latter plan, which was rejected by the Soviet Union, the United States would have agreed to declassify a great deal of information underlying nuclear weapons development in exchange for strictly enforced international safeguards. (ed.)
MEMORANDUM FOR THE FILE

SUBJECT: Conversation with Dr. Vannevar Bush

I spent an hour and a half with Dr. Bush this afternoon. He asked me to post him about the National Science Foundation’s status, which I did, including a discussion of certain of the names.

I told him that I wanted to discuss with him two principal matters, namely, the Research and Development Board and the Advisory Committee on Defense Scientific Research. He said that Clay and Wilson had spoken to him once apparently, about the latter. He said that he liked the idea - the committee form and the full-time chairman - and that it was far better than a single scientific adviser. He showed real enthusiasm for this arrangement, which was consistent with his previous remarks to me. He said that the chairman should not be a scientist, but should be somebody with engineering background in an industrial field, since he regards the principal mission of the committee to be to accelerate the transition from completed development into actual production and to the battlefield. This is the point which he had mentioned before, though not in this connection, and he spoke about it recurrently and intensively throughout our discussion. It is evident that it is his current most active idea in the Government-military field. As to the other functions of the committee which I had discussed with him previously and which, of course, others had discussed with him, such as representation of the scientific community, he said he didn’t care what the scientists thought; that they didn’t need to be represented - it wouldn’t do any harm - but the problem now is not one of science. It is clear that, at any rate, that is not in the forefront of his mind at the moment. He said, oh, yes, he’d have a few scientists on the committee. To reiterate, he said that the chairman should not be a scientist and should not be somebody who came out of an industry where there could be long transition between development and production. He mentioned four-four-wheel brakes as an illustration, saying we should have had them in commercial use half a dozen years sooner than we did but the automobile companies are too cautious and too slow.

Referring again to the Advisory Committee on Defense Scientific Research I asked his views about a half-time chairman with a full time executive secretary or deputy chairman such as [Lawrence] Hafstad [Atomic Energy Commission] - this in the event that an appropriate full-time chairman were not available. He said, very good; in fact, I would make Hafstad the chairman. I asked what about that industrial experience you spoke of as a requisite for the chairman? To which he replied by saying that Hafstad’s experience in administration as assistant to [Merle] Tuve on V.T. fuses during the war at the Applied Physics Lab would count for that.

He talked at considerable length on various aspects about organizational matters in the Navy Department and in the Army Department and, to a lesser extent, in the Air Force. He returned to these matters and, as I said, did the greatest part of the talking, pointing out how he would do things if he were Secretary, etc.
I mentioned to him that Gen. [L.E.] Simon [Bureau of Ordnance, U.S. Army] yesterday had brought up the matter of the Beano grenade which he had first mentioned to me when I talked with him back in October, as I recall it, and he seemed quite pleased about this and said, yes, it had been dead ever since the OSRD days until he had revived the matter recently. He referred to the impending creation of a Scientific Advisory Committee to the Chief of Ordnance, which Simon had also mentioned to me yesterday. He said he would not serve on this committee or on any committee, and he told me clearly and explicitly that this refusal to serve would also apply to the Advisory Committee on Defense Scientific Research. He said he could get all the information he wanted anyway and that he preferred to operate from outside. When I was leaving he asked me to please be sure to keep him posted on all developments.

He was recently back from Florida and seemed to be in vigorous good health and was most cordial and expansive.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Telephone conversation with Dr. J. Robert Oppenheimer

I called Dr. Oppenheimer on the telephone to tell him of the status of matters concerning the Advisory Committee on Defense Scientific Research with particular reference to the chairmanship. I told him briefly of my [March 10] telephone conversation with Dr. Buckley. My call to him was in view of the fact that he would be seeing Dr. Buckley tomorrow, I expected, at the meeting of the General Advisory Committee to the AEC in Chicago.

He said that he expected that on the train going out to Chicago this evening he would meet with Dr. Buckley, Rabi, Conant, DuBridge and perhaps one or two others of the GAC. He mentioned that Dr. DuBridge was coming in to see him in a few minutes. He thought that, and so did I, Dr. Buckley would undoubtedly discuss the matter with these individuals.

We talked about the alternative of a half-time Chairman with a full-time Executive Officer in the event that Dr. Buckley declined the chairmanship. We also talked about a full-time Executive Officer in the event that Dr. Buckley did undertake the job. He said that he had heard Dr. Buckley say some good things about Larry Hafstad [Atomic Energy Commission] but that he doubted that Hafstad would be his choice for this position and that he would surely, at any rate, have ideas of his own. Oppenheimer said, with respect to a half-time chairman when I asked, that he did not know Dr. Killian at all well.

William T. Golden
MEMORANDUM FOR THE FILE

SUBJECT: Telephone conversation with Dr. Oliver E. Buckley

Dr. Buckley called me on the telephone this noontime to say that he was actively considering the question of whether he should undertake the chairmanship of the Advisory Committee on Defense Scientific Research and that he was having lunch with Bill Webster today in New York. I told him that I knew the latter, that Bill had mentioned it to me, and that I had driven out to the airport at Bolling Field this morning with Bill, who was on his way to New York.

Buckley said that in his mind the basic question was: is there really a job here to be done? This he subdivided into what would the Chairman do in his capacity as full-time advisor to Wilson and Clay etc. and what does the Committee do? He said he was asking several people about this and was thinking it over hard. He said he wanted to talk with me about it either in New York, if I would be there over the weekend, or in Washington. He said he plans to come to Washington around mid day on this coming Tuesday [March 27] and stay here for a day or two.

He said that he called General Clay earlier this morning to let him know that he was actively considering it and to tell him that it might take him as much as two weeks to make up his mind.

He said that he was going to talk with a number of people; did I see any objection to that? And I said certainly not, that was the thing to do. Among the people he volunteered, or I suggested that he talk to, were Dr. Kelly, Bill Webster, Robert Oppenheimer, Dr. Bush, whom he saw when he was here last, Dr. Conant, Lee DuBridge and Dr. Albert Noyes [University of Rochester], who is a fellow graduate of Grinell and whom I urged him to talk with in view particularly of Dr. Noyes’ letter of some months ago to Dr. Steelman. He also said that he wanted to talk this over thoroughly with Dr. Bronk.

William T. Golden
March 24, 1951

MEMORANDUM FOR THE FILE

SUBJECT: Telephone conversation with Dr. James R. Killian

I told him about the status of the offer of the chairmanship of the RDB to Keith Glennan and told him that unless Glennan were pushed the path of least resistance seemed to be for him to reject the appointment.\(^1\) It also seemed to me that the best appeal would come through the Trustees of Case. Killian was eager for Glennan to take the job and said he would phone him immediately - which I later understood from Glennan that he did.

I told him about the offer of the chairmanship of the Advisory Committee on Defense Scientific Research to Oliver Buckley, or rather referred to it since he already knew of it, and said that it was my feeling that Dr. Buckley would be considering the matter carefully before deciding and that he would be strongly influenced by the judgment and recommendations of those those opinions in such matters he respected. Specifically, therefore, the question was that if Killian and others were eager to have Buckley take the job rather than have the whole matter wide open again with a big question as to whom it was to be offered to or whether it would be offered at all and in what form--those then who wanted Dr. Buckley to take it had better get behind it and push, giving him logical reasons why there is a job to be done and why he should do it. Killian stated unequivocally that he would be eager to have Buckley take the job and that he thought that it would be very bad if Buckley did not take it and the matter were wide open. His comments were essentially the same as those of Robert Oppenheimer and Bill Webster in urging that Buckley take the chairmanship.

I asked Killian’s permission to show Buckley Killian’s tentative memorandum of the findings and opinions of the Killian RDB ad hoc group at its meeting in December on the matter of a Scientific Adviser to the President, which he had sent me with his letter of January 3, or thereabouts. Killian said I certainly could show it to Buckley; he would be glad to have him see it.

William T. Golden

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\(^1\) T. Keith Glennan, with whom Golden recounts four conversations between February 27 and April 16, 1951, was an Atomic Energy Commissioner on leave of absence from the presidency of Case Institute of Technology. Glennan declined to accept the RDB chairmanship and in 1952 returned to Case. In 1958 he became the first administrator of NASA. (ed.)
MEMORANDUM FOR THE FILE

SUBJECT: Telephone conversation with Dr. Oliver E. Buckley

I had a long telephone conversation with Oliver Buckley this Sunday morning [April 8].

He said that Conant’s view is essentially the same as Oppenheimer’s with respect to the Science Advisory Committee (new name for the Advisory Committee on Defense Scientific Research). Conant agreed to serve on the Committee. Buckley spent an hour-and-a-half with Bush on Friday afternoon [April 6] and Bush this time was thoroughly objective, dispassionate and helpful. Bush and Wilson are scheduled to meet this coming Tuesday afternoon [April 10].

On Tuesday morning [April 10] Buckley would like to meet with me and Stauffacher to go over questions, drafts, etc. He, Buckley, does not want to talk to Wilson and Weinberg until after he has talked with Bush after Bush has talked with Wilson.

He has virtually decided now to undertake the Chairmanship in view of the encouragement he has had from Bush and more enthusiastic, or something approaching enthusiastic, encouragement from Conant.

His ideas now on the Committee are, in addition to him self as Chairman, Bronk, Waterman, [Hugh] Dryden [Administrator, National Advisory Committee for Aeronautics] and Webster as the ex officio members, and then Oppenheimer, Conant, Killian, DuBridge and Bayard Hastings [Harvard University]. This is not yet crystallized as final. In addition he wants to put on about four or five young scientist to be selected carefully and added later.

William T. Golden
EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON 25, D.C.

April 10 and 11, 1951

MEMORANDUM FOR THE FILE

SUBJECT: Conversations with Dr. Oliver E. Buckley and Charles B. Stauffacher

Charlie Stauffacher and I had several conversations with Oliver Buckley on these two days. He has decided to accept the Chairmanship of the Science Advisory Committee. He has talked again with Bush, who is now enthusiastically in supportive the Committee. Bush had lunch with Wilson, Weinberg and Stauffacher yesterday. The RDB matter was also discussed a bit in passing. Buckley has now had his discussions with Weinberg and Wilson and has definitely accepted the Chairmanship, has been given quarters, etc. It is planned that the announcement will be made on Thursday, April 19, and that Dr. Buckley will meet with President Truman that day.

Oliver Buckley has now talked with all initial members of the Committee except for Dr. Robert F. Loeb [Columbia University, College of Physicians and Surgeons], whom he plan to talk with tomorrow. As far as is known Dr. Loeb has no intimation whatsoever of this matter. To my knowledge Dr. Buckley has not discussed it at all with him. The change from the name of Dr. Baird Hastings [Harvard University], whom Dr. Conant and others had suggested as the medical doctor member of the Committee, was made by Dr. Buckley this morning after I expressed Dr. Farnsworth Loomis’ [a prominent New York physician] judgments on this to him and after he had checked with Dr. Newton Richards, who was the biologist member of OSRD and whom he greatly respects. He made this check on the telephone yesterday afternoon and then checked with Conant who agreed fully to the change. He also checked with Bronk and others on this.

As of this evening, therefore, the Committee stands as:

Dr. Buckley, Chairman
Dr. Bronk as President of the National Academy
Mr. Webster as Chairman of RDB
Dr. Waterman as Chairman of National Science Foundation
Dr. Dryden as a member of the Interdepartmental Committee on Scientific Research and Development
Dr. DuBridge
Dr. Oppenheimer
Dr. Conant
Dr. Killian
Loeb, M. D.
Dr. Charles A. Thomas

In addition it is planned to add up to four younger scientists after additional consideration has been given to whom they should be.
Donna Mitchell will be Dr. Buckley’s secretary, if Bob LeBaron’s [Bureau of the Budget] permission can be obtained, which can almost certainly be done.

Dr. Buckley and I had some brief conversations about possible younger scientists and among the names mentioned were Dr. Luis Alvarez [University of California] (whom Henry Loomis had very strongly recommended to me a few days ago—strongly in comparison with [Jerrold] Zacharias [MIT], [Edwin] Gilliland [MIT] and [George] Kistiakowsky [Harvard University], although they rate high also). The inclusion of Killian [the only committee member without an advanced degree] just about eliminates a place for Rowan Gaither [a San Francisco attorney]. The name of George Beadle of Cal Tech, a biologist of broad comprehension, who was suggested, among others, by Farnsworth Loomis, was also mentioned.

Mention was again made of Dr. Donald Marquis [University of Michigan] as a psychologist.
December 18, 1950

My Dear Mr. President:

Pursuant to the memorandum on the subject of Scientific Research and Development of Military Significance, which the Director of the Bureau of the Budget addressed to you on October 19, 1950, and which you approved on October 20, I have undertaken the appropriate studies and submit herewith my first recommendation.

This recommendation, for the appointment of an outstanding scientific leader as Scientific Adviser to the President, with functions described in the attached memorandum, is particularly timely because of the trend in international relations and the importance of science in the mobilization program of the United States.

In studying the problem and in arriving at this recommendation I have had the benefit of discussions with many leading scientists and appropriate Government officials. There has been general agreement on the wisdom of the recommendation and I believe that your appointment of a Scientific Adviser to the President, with the duties described in this memorandum, would be very favorably received in the scientific community and would represent a substantial element of progress in the war mobilization program.

Respectfully yours,
William T. Golden

The President of the United States
MEMORANDUM FOR THE PRESIDENT

SUBJECT: Mobilization of Science for War: A Scientific Adviser to the President

SUMMARY

I. Recommendation:

This memorandum recommends the prompt appointment of an outstanding scientific leader as Scientific Adviser to the President. His functions would be:

To inform himself and keep informed on all scientific research and development programs of military significance within the several independent Government departments so engaged.

To plan for and stand ready promptly to initiate a civilian Scientific Research Agency, roughly comparable to the Office of Scientific Research and Development (OSRD) of World War II.

To be available to give the President independent and comprehensive advice on scientific matters, inside and outside the Government, particularly those of military significance.

II. Reasons:

Two principal considerations lead to the recommendation that a Scientific Adviser to the President be appointed at this time:

More than ten independent departments and agencies of the Government are now conducting significant research and development programs of actual or potential military value. Their obligations for these purposes approximated $1,300,000,000 in FY 1950 (somewhat over 50% by the Department of Defense) and will be much greater in FY 1952. The procurement programs, for which research is the first step, will be many times these sums. Each of these agencies reports separately to the President. There is need for centralization of knowledge of all these scientific programs in one independent and technically competent individual to whom the President can turn for advice.

The Office of Scientific Research and Development in World War II, and other civilian organizations in prior wars, were responsible for highly valuable technical advances outside of military channels. The proximity fuse, micro-wave radar, and the initiation of work on the atom bomb are notable examples. There will again be need for such a civilian scientific research agency, to supplement the work of the military and other established organizations through exploitation of research areas not suitable for them and to provide uninhibited working conditions for a limited number of leading scientific minds on radical and unorthodox ideas.
Plans for such an OSRD-type “Scientific Research Agency” should be developed promptly and the agency itself should be established in a modest way as soon as the first appropriate projects are selected, evolving thereafter in accordance with opportunity and the then prevailing degree of urgency. The Scientific Adviser to the President, with his competence and comprehensive knowledge would be ideally qualified to plan the Scientific Research Agency and to discern opportunities for its initial projects and specific scientists to undertake them. At the time of the actual establishment of the Scientific Research Agency decision would be made as to whether the Scientific Adviser would undertake to head its operating organization or whether another man should be called in for this function, leaving the former in his purely advisory capacity.
MEMORANDUM FOR THE CHAIRMAN OF THE NATIONAL SCIENCE FOUNDATION

For the past several months, Mr. William Golden has been working for the White House Office and the Bureau of the Budget on a number of matters involving scientific research and development activities. During the course of this work he has had a number of discussions with persons both in and out of government concerning matters which are closely related to the possible work of the Science Foundation.

Mr. Golden has prepared the attached memorandum which summarizes his views concerning a possible approach to the development of a program by the National Science Foundation. We are transmitting them to you with the thought that they may be of interest and help as you are considering this matter. We feel it would be inappropriate for the Bureau of the Budget officially to endorse this paper since we do not want to be in the position, or have you feel that we are in the position, of having prejudged your actions.

We will of course be available and anxious to discuss your plans for organization and programs as soon as you desire to do so.

(signed) F.J. Lawton
Director

Attachment

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(Sent to Members of the NSF Board)

This letter is being sent to you for your information at the request of President J.B. Conant.

(signed) Harold E. Benson
Acting Administrative Officer

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Memorandum on Program for the National Science Foundation

It is well to reiterate the pre-eminent need, from a long-term viewpoint, for advancing basic scientific knowledge. To promote such studies is the primary purpose of the National Science Foundation. To this end provision is being made for a representative of the National Science Foundation to be a member of the newly created Advisory Committee on Defense Scientific Research. This latter Committee, located within the Office of Defense Mobilization and reporting to the Defense Mobilizer and to the President, will serve as a focus in the mobilization program for a representation of the scientific community and further will serve as the central point for knowledge of the efforts of the Government as a whole in scientific research and development of military significance. Membership on the Committee will consist of ex officio representatives of the appropriate Government agencies plus a representative selection of distinguished scientists at large.

Substantial effort is already directed to basic research within the United States, being supported by universities, private industry and the Government. Government funds being expended for basic research in FY 1951 are of the order of $100 million according to Bureau of the Budget figures, though much depends on the definition of “basic”. It will be recalled that beginning around 1939 basic scientific study in the United States was severely cut back by the necessary diversion of effort to applied research and development incident to World War II. Several distinguished scientists have recently reiterated that basic studies, particularly in the physical sciences, have not yet recovered from this interruption. It is clear that for the long-term future of the United states, in peace and in war, there can be no better investment than the replenishment and increase of this seed corn of basic scientific knowledge.

Under conditions of mobilization now confronting us, with the primary necessity of increasing the military strength of the United States with maximum speed, very large increases are being made in the Federal budget for military expenditures. Federal funds for research and development of all kinds within the Department of Defense alone, which originally approximated $500 million for FY 1950, are expected to be in the neighborhood of $1,250,000,000 for FY 1952. Thus there will be a very large demand on scientific manpower of the country for military purposes to meet the immediate threat.

Consequently, it appears that under present conditions there can be no substantial diversion of effort from the near-term needs for applied military research to permit an immediate increase in the quantity of basic research. Nevertheless it is important that current basic research be continued, despite the heavy pressures which will be put on manpower and facilities to shift their emphasis to scientific activities having greater promise of prompt results. And as soon as our expanding military research and development programs are more clearly defined and stabilized it should be possible to divert some effort to increase the attention paid to basic research. This is vital to broaden the foundation of knowledge for our military and industrial strength and the public welfare over the longer term.

In the interim however there is every reason to encourage the transfer of existing basic research projects, or equivalent supporting funds, from the present active agencies (such as the Office of Naval Research and the Atomic Energy Commission) to the National Science Foundation. A gradual transition of this sort should afford an excellent method for the National Science Foundation to begin its supervisory operations.

A Program for the National Science Foundation

It may be worth repeating that in accordance with the spirit of the Act, as well as the judgment of substantially all scientists with whom I have discussed the question, the National Science Foundation should confine its activities to furthering basic scientific studies and that it should not dilute its
effectiveness by supporting studies of directly military or other applied character. To do so would seriously impair the long-term mission of the National Science Foundation without materially contributing to the war effort, since such work can better be done by other agencies. In the long run, of course, additions to basic scientific knowledge will contribute, as previously indicated, to both the wartime and peacetime strength of the country; but short-term results are not to be looked for.

The question of appropriations to the National Science Foundation is important but will not become a matter for immediate consideration until the Board itself analyzes its undertakings and prepares a recommended program for the near-term and long-term future. As a matter of interest the Act as passed authorized direct appropriations not to exceed $500,000 for the FY ending June 30, 1951, and not to exceed $15 million for each FY thereafter.

In my judgment, and in accordance with the Act, the Foundation, promptly after the appointment of a Director, might proceed to the following principal undertakings:

1. Prepare a comprehensive review detailing the significant areas of basic science which are now being studied within the United States, showing these separately for research supported by universities, by industry and by the Government. To the extent practicable the pattern should also indicate work in process in friendly foreign countries. No complete mosaic is possible since the range of basic knowledge (and the awareness of the lack of knowledge) may be expected to expand without limit; but such a study, divided by the major sciences including the social sciences, will create a useful frame of reference. Such a factual framework will assist in the direction of emphasis for new undertakings and will also be helpful (particularly with respect to the foreign portion) in the avoidance of unintentional duplication of effort and in promotion of joint efforts on an international scale in these unclassified areas.

2. Prepare a comparable survey detailing the existing support of graduate and undergraduate education in the sciences by the many public and private agencies so engaged. Here, too, a clear understanding of the existing situation is a condition precedent to an effective fellowship and scholarship program by the National Science Foundation. Existing supports in large measure, like Topsy, “just growed”. A comprehensive survey of the facts would be invaluable for the guidance of private as well as public assistance. It is evident that this relates to the broader field of Government support of education as a whole and it should aid in the determination of comprehensive policy and program. This review should also evaluate the indirect support of education in the sciences afforded by Government research and development contracts with universities.

The initiation of a fellowship and scholarship program need not await the completion of the survey but the major long-term program should of course be based on the synoptic view it will provide. In the interim, strong efforts should be made to obtain funds for immediate pre-doctoral and post-doctoral fellowships, although it is not clear how this can be done within the limitations of the Act, prior to the beginning of the FY 1952, other than through transfers of funds from existing agencies such as the Atomic Energy Commissions. It is not the purpose of this memorandum to go into detail. However, to indicate the order of magnitude of such an initial fellowship program consideration might be given to a post-doctoral program consisting of two or three fellowships at each of say twelve universities in a number of major fields such as Physics, Chemistry, Biology and Engineering, making say a total of 150 such fellowships at something approaching $4,000 each. This would involve perhaps $600,000 per annum and something approaching twice that sum if provision were made for two-year fellowships. The number of pre-doctoral fellowships should be higher. In view of the disruption of the educational process inherent in the mobilization effort it would be unwise not to undertake some such fellowship program in order to insure the continuing production
of scientific leaders over the longer term. We must not, in preparing for the threat of immediate war, overlook preparedness for a war which may come five years or more in the future. The continuing production of scientific leaders is essential to that end. The cost of such a fellowship program is very small in relation to its potential value and to the total cost of Government’s scientific research programs.

3. Study the scientific manpower resources of the United States: a) as specifically called for in the Act, by taking over, completing, and keeping current the detailed National Scientific Register; and b) by preparing quantitative analytical studies of available and prospective scientific and technical manpower. The categories would include scientific and technical specialties as well as degrees of proficiency, years of experience, age brackets and the like. These latter studies would be based in part on judgment and statistical analyses of available data rather than just on head counts. Dependable data of this sort is badly need in mobilization planning and would influence Selective Service policies and decisions as to educational emphasis and support by Government and private agencies.

4. Review basic research activities of other Government agencies and in cooperation with them develop proposals for transferring appropriate portions of these programs to the National Science Foundation. In this connection, and to provide background for its work, the Board might wish to invite other Government agencies engaged in or supporting basic research activities to make descriptive presentations of their programs to the Board. The length of such presentations would in large measure depend upon the amount of time which the Board wished to devote to receiving briefings of this kind. The Bureau of the Budget could be very helpful in making these arrangements because of its experience and its close working arrangements with all Government agencies.

Preparation of studies of the aforementioned character are primarily tasks for the staff under the Director but the members of the 24-man Board, through their Divisional Committees and Special Commissions, are particularly well qualified to plan and determine their undertakings and to give guidance to the staff in the areas of their specialties. It is also evident that the National Academy of Sciences and other existing public and private groups can be very helpful.

Based on the reviews described above the National Science Foundation can prepare its own program for the future and will put itself in a position to provide invaluable advice to the President and the Congress, in guiding emphasis on governmental basic research programs. Reports of the above reviews, particularly the first and second, would, of course, be unclassified and it is hoped that they would be published and made generally available. They would not only provide justification for the granting of Federal appropriations but would be invaluable as well for the intelligent placement and integration of private funds. They should, therefore, become documents of widespread public interest.

February 13, 1951
William T. Golden
My Dear Dr. Buckley:

For some time, I have been considering the best means whereby scientists of the country could assist and be encouraged in their participation in the mobilization program. At the same time, I have been increasingly mindful of the many demands which the Federal programs are placing upon scientific resources, and of the reliance which the Government properly places upon the successful prosecution of scientific research and development activities.

The Federal Government has a considerable number of agencies engaged in research and development activities of significance for both peacetime purposes and national defense. There are currently in existence a number of arrangements for coordinating segments of the work of these agencies. I have been concerned, however, that our existing arrangements do not provide adequate liaison among the agencies principally concerned with our national research and development effort, nor between them and the Office of Defense Mobilization. Such liaison is obviously essential to securing the full contribution of scientists to our defense planning.

I have therefore determined to establish a Scientific Advisory Committee of the Office of Defense Mobilization, to be available to the Defense Mobilization Director and to me,

a) To provide independent advice on scientific matters especially as regards the objectives of interrelations of the several Federal agencies engaged in research of defense significance, including relevant foreign relations and intelligence matters.

b) To advise on progress being made in dealing with current scientific research problems of defense significance and also concerning defense research matters which need greater attention or emphasis.

c) To advise concerning plans and methods for the implementation of scientific effort for defense.

d) For transmitting the views of the scientific community of the country on research and development matters of national defense significance.

I am therefore appointing you as chairman, and am asking the following to serve as members of the Committee:

Dr. Detlev W. Bronk: as President of the National Academy of Sciences;
Dr. William Webster: as Chairman of the Research and Development Board;
Dr. Alan Waterman: as Director of the National Science Foundation;
Dr. Hugh Dryden: of the Interdepartmental Committee on Scientific Research and Development
Dr. James B. Conant
Dr. Lee DuBridge
Dr. James R. Killian
Dr. Robert F. Loeb
Dr. J. Robert Oppenheimer
Dr. Charles A. Thomas
I have discussed the creation of this Committee and its functions with Mr. Charles E. Wilson, as much of its work will be related to his responsibilities as Defense Mobilization Director. We are in agreement that the Committee should be established within the Office of Defense Mobilization. In this way, it will be in a direct position to participate in the mobilization program directed by Mr. Wilson as it affects scientific research and development. It will likewise be in a position to advise both Mr. Wilson and me concerning the interrelationship of the mobilization program and the achievement of our long-range objectives of continued progress in scientific research and development.

I am forwarding copies of this letter to the heads of the Government agencies primarily concerned with research and development activities with the request that they extend you their full cooperation. Likewise, I expect that you will freely call on private scientific groups and individuals for assistance. I shall welcome the recommendations of the Committee and shall call upon it for advice from time to time.

Sincerely yours,

(signed) Harry S Truman

Dr. Oliver E. Buckley
Bell Telephone Laboratories
463 West Street
New York 14, New York
Impacts of the Early Cold War on the Formulation of U.S. Science Policy

Selected Memoranda of William T. Golden
October 1950 – April 1951

Appendices
DRAMATIS PERSONAE

Robert F. Bacher (1905- ): Golden recorded four conversations with Bacher during the course of his consultancy. The second, a December 21, 1950, dinner meeting that included J. Robert Oppenheimer and Charles Lauritsen, is reproduced in this volume. Somewhat more than a year before that time, Bacher had left the physics department at Cornell University where he had taught since 1935, to become chairman of the Department of Mathematics, Physics and Astronomy at the California Institute of Technology. He was born in Loudenville, Ohio, and received his BS and PhD degrees in physics from the University of Michigan, the latter in 1930. He held a succession of one-year research appointments at Caltech, MIT, Michigan, and Columbia before joining the Cornell faculty. Bacher took a leave of absence during World War II: from 1941-43 he was a staff member at the Radiation Laboratory at MIT, and from 1943-45 head of the Experimental Physics Division at Los Alamos. He was a Commissioner of the AEC from 1946-49, a member of SAC from 1953-55, and a member of the President’s Science Advisory Committee (PSAC) from 1957-60. He served as Caltech provost from 1962-70, and retired as an active member of its faculty in 1976.

Detlev W. Bronk (1897-1975): Golden recorded five conversations with Bronk, three of which are reproduced in this volume. By then, Bronk had been president of Johns Hopkins University for about a year and president of the National Academy of Sciences for a few months. Bronk was born in New York City, received his BS from Swarthmore College, and his PhD in biology from the University of Michigan in 1926. He directed the Johnson Research Foundation at the University of Pennsylvania from 1929-49, except for the period 1942-46 when he was coordinator of research in the Air Surgeon General’s Office. In 1946 while still directing the Johnson Foundation, Bronk also became chairman of the National Research Council, a position he relinquished in 1950 when he became president of the National Academy of Sciences. He was elected to that position over James B. Conant, the official candidate, by means of a virtually unprecedented revolt by the academy membership against its nominating committee. He completed two six-year terms as academy president, while serving concurrently as president of a major university. He left Johns Hopkins in 1953 to become president of the Rockefeller University, a position from which he retired in 1968. Bronk served on the National Science Board from 1950-64, and was its chairman during the last eight years of that period.

Oliver E. Buckley (1887-1959): Golden recorded 14 conversations with Buckley, four of which are reproduced in this volume. During the five month period spanned by these conversations, Buckley retired as president of Bell Telephone Laboratories and assumed the chairmanship of the Scientific Advisory Committee to the Office of Defense Mobilization. He was born in Sloan, Iowa, graduated from Grinnell College, and received his PhD in physics from Cornell in 1914. From 1914-25 he was a member of the research division at the Western Electric Company, and joined Bell Laboratories in 1925. Buckley was commissioned as a major in World War II and served in Paris in the Research and Inspection Division of the Army Air Force Signal Corps. During World War II, he was a member of the Communications and the Guided Missiles Divisions of the Office of Scientific Research and Development (OSRD), and was a member of the General Advisory Committee to the Atomic Energy Commission from 1947-52. Buckley became chairman of the board of Bell Laboratories following his retirement as its president. He retired from both that position and the chairmanship of SAC in 1952.

Vannevar Bush (1890-1974): Golden recorded five conversations with Bush, three of which are reproduced in this volume. During this time Bush was president of the Carnegie Institution of Washington, a position he had held since 1939. Although he had had no official connection with government since 1948 when he relinquished the chairmanship of the Research and Development Board, Bush still enjoyed considerable personal influence in both scientific and military circles. He was born in
Everett, Massachusetts, received his BS and MS degrees from Tufts University, and the degree of Doctor of Engineering from MIT in 1916. After serving in the Mathematics Department at Tufts from 1914-17, Bush assumed a position with the U.S. Navy, conducting research on submarine detection methods. He joined the MIT faculty in 1919 and became dean of engineering in 1932, a position he retained until assuming the presidency of the Carnegie Institution. In 1940 Bush, along with James Conant, MIT president Karl Compton, and Frank Jewett, president of the National Academy of Sciences, conceived of a National Defense Research Committee (NDRC) that would quietly make plans to mobilize U.S. science in preparation for the near certainty that the country would become involved in World War II. In June of that year, Bush convinced President Franklin D. Roosevelt to establish the NDRC and was named its chairman. A year later the NDRC, under Conant’s chairmanship, was incorporated into the newly established Office of Scientific Research and Development (OSRD), which Bush directed. From November 1944 to July 1995, he coordinated the work of four committees whose respective reports comprise a 150 appendix to the 40 pages Bush himself composed as the now legendary Science - the Endless Frontier. Bush became a member of the board of trustees the Carnegie Institution when he retired as its president in 1955, a position he retained until his death. His non-technical writings include: Modern Arms and Free Men (1949), Science is Not Enough (1967), and Pieces of the Action (1970), the latter a collection of autobiographical recollections.

William D. Carey (1916-1998): Although Carey appears only once in Golden’s records of his consultancy -- as a silent witness at the January 5, 1951, meeting at the Bureau of the Budget (BoB) where Conant was obliged to report the National Science Board’s opposition to Golden’s presidential scientific adviser proposal -- by that time he was already well known in Washington circles as a successful advocate of an expanded role for science in government. In 1946, he was designated as the principal BoB officer responsible for overseeing the organization of the newly created Atomic Energy Commission, and subsequently became BoB’s principal officer responsible for crafting acceptable legislation for a National Science Foundation. Carey was born in New York City, received his BA and MA degrees from Columbia University, and a Masters of Public Administration from the Littauer School at Harvard University in 1942. He joined BoB the same year and, and in 1960 was appointed assistant director by President Dwight Eisenhower. After leaving BoB in 1969, Carey became a Vice President of the Arthur D. Little Company in 1969. He became Executive Officer of the American Association for the Advancement of Science (AAAS) in 1975, retiring from that position in 1987. Carey contributed an essay to William Golden’s Science Advice to the President (Pergamon, 1980) entitled, “The Pleasures of Advising.”

Lucius D. Clay (1897-1978): Golden recorded two meetings with General Clay. The first, on January 16, 1951, is reproduced in this volume; the second took place exactly a week later. At that time General Clay had been retired from active service with the U.S. Army for two years. By April 1951 he had left government entirely to become chief executive officer of the Continental Can Company and, through 1971, held a succession of corporate positions. Clay was born in Marietta, Georgia, and graduated from the U.S. Military Academy at West Point in 1918. He served with the Army Corps of Engineers in his early career, and was instructor in civil and military engineering at West Point from 1924-28. In 1937, he served briefly on General Douglas MacArthur’s staff in the Philippines. Clay was assigned to various staff positions during World War II, becoming a deputy to General Dwight Eisenhower in 1945. From 1947-49 he was Commander in Chief of U.S. Forces in Europe and Military Governor of the U.S. Occupation Zone in Germany. He achieved considerable fame in the latter capacity as organizer of the Berlin Airlift in 1948. In 1961, he was named as President John Kennedy’s personal representative in Berlin, with the rank of ambassador.
James B. Conant (1893-1978): Golden recorded three conversations with Conant, two of which are reproduced in this volume. Conant had by then been president of Harvard University for more than 17 years, and was to remain in that position for almost three more years. He was born in Dorchester, Massachusetts, and received both his BS and his PhD degrees in chemistry from Harvard, the latter in 1916. He was a member of the Chemistry Department at Harvard from 1919 until he became president of the university in 1933. From 1941-46 he was chairman of the National Defense Research Committee within the OSRD and deputy director of the latter. He served as a member of the General Advisory Committee to the Atomic Energy Commission from 1947-52, and as chairman of the National Science Board from 1950-53. He resigned from both Harvard and the NSB in 1953 to become U.S. High Commissioner for Germany. When the Federal Republic of Germany was created in 1955, Conant’s status became that of first U.S. ambassador. Following his return to the United States in 1957, he directed a number of studies on U.S. education for the Carnegie Corporation of New York, the last of them completed in 1963. His numerous non-technical books include: On Understanding Science (1947), Education in a Divided World (1948), Science and Common Sense (1951 - page proofs of which he presented to Golden during their December 14, 1950, meeting), Modern Science and Modern Man (1952), The Citadel of Learning (1956), Germany and Freedom (1958), The Revolutionary Transformation of the American High School (1959), Slums and Suburbs: A Commentary on Schools in Metropolitan Areas (1961), The Comprehensive High School (1967), Scientific Principles and Moral Conduct (1967), and My Several Lives (1970). He also served as editor, in 1957, of the two volumes of the Harvard Case Histories in Experimental Science.

Lee A. DuBridge (1901-94): Golden recorded four conversations with DuBridge, three of which are reproduced in this volume. By then, DuBridge had been President of the California Institute of Technology for four years. He was born in Terre Haute, Indiana, received a BA degree from Cornell College, Iowa, and a PhD in physics from the University of Wisconsin in 1926. He held academic appointments at Caltech and the University of Washington before joining the faculty at Rochester University in 1934, where he served as dean of the faculty of arts and sciences from 1938-42. During World War II, he was director of the Radiation Laboratory at MIT, and assumed the presidency of Caltech in 1946. DuBridge served on the General Advisory Committee to the Atomic Energy Commission from 1946-52, on the National Science Board from 1950-56, and on the Scientific Advisory Committee to the Office of Defense Mobilization from 1951-56 -- as chairman during the last four years. In January 1969 he retired from Caltech to become science adviser to President Richard Nixon, a position he retained until the following September. DuBridge contributed an essay to William Golden’s Science Advice to the President (Pergamon, 1980) entitled, “Science Advice to the President: Important and Difficult.”

Leslie R. Groves (1896-1970): Golden’s only meeting with Lt. General Groves is reproduced in this volume, an interview Golden sought even though many thought the idea of talking with him was “radical”. At that time Groves had been retired from active service for two years and was a vice president of the Remington Division of the Sperry Rand Corporation. He was born in Albany, New York, and studied for a year at the University of Washington and two years at MIT before entering the U.S. Military Academy at West Point, where he received his BS degree in 1918. He graduated from the Army Engineering School in 1921. Groves was attached to the Army Corps of Engineers throughout his career. In 1940-41 he oversaw what was, until then, the largest military engineering project ever undertaken by the U.S. Army: construction of the Pentagon in Arlington, Virginia. As a result of his success with that project he became, in 1940, head of the Manhattan District of the Corps of Engineers, and in that capacity had operational oversight of the World War II nuclear weapons development program. Groves retired from his position with Sperry Rand in 1961.
James R. Killian, Jr. (1904-1988): Golden recorded six conversations with Killian, three of which are reproduced in this volume. By then, Killian had been president of MIT for two years. He was born in Blacksburg, South Carolina, and studied two years at Duke University before transferring to MIT where he received a BS degree in 1926. Until his appointment as executive assistant to MIT president Karl Compton in 1939, Killian was associated with the journal, Technology Review, serving as its editor from 1930-39. In 1943 he was promoted to executive vice president of MIT, became vice president in 1945, and succeeded Compton as president in 1948. Killian served on the Scientific Advisory Committee to the Office of Defense Mobilization from 1950-57 and on the President’s Science Advisory Committee from 1957-61. From 1957-59 he was also science adviser to President Dwight Eisenhower. He retired from the presidency of MIT in 1959 and served as chairman of the MIT corporation from that year until 1971. Killian was author Sputnik, Scientists, and Eisenhower, and contributed an essay to William Golden’s Science Advice to the President (Pergamon, 1980) entitled, “The Origins and Use of a Scientific Presence in the White House.”

Charles C. Lauritsen (1892-1968): Lauritsen makes only one appearance in Golden’s memoranda, in the account of a December 21, 1950, dinner meeting with Robert Bacher and J. Robert Oppenheimer. At that time he was professor of physics at the California Institute of Technology. Lauritsen was born in Hostebro, Denmark, graduated from the Odense Tekniske Skole in that country, and received his PhD in physics from Caltech 1929. He immediately joined the Caltech Tech faculty on which he served until his retirement as professor of physics in 1962. Lauritsen became associated with the OSRD in 1940, and continued to serve as a scientific consultant to the Department of Defense until his death.

Frederick J. Lawton (1900-1975): Golden records of his three conversations with Lawton are somewhat prefunctory. Thus, his name appears among the memoranda in this selection only in the form of signature blocs on two significant memoranda: an October 19, 1950, memorandum to the president requesting his approval of Golden’s consultancy; and a February 15, 1951, memorandum transmitting Golden’s “Memorandum on Program for the National Science Foundation” to National Science Board Chairman James Conant. It is perhaps fitting that he has been represented in this manner since, as director of the Bureau of the Budget (BoB), he was responsible for assuring that the president remained fully informed on policy matters, and was therefore ultimately responsible for Golden’s consultancy. Lawton was born in Washington, DC, graduated from Georgetown University in 1920, and joined the Treasury Department the next year. Fortuitously, perhaps, 1921 was also the year that the Bureau of the Budget was first created -- in the Treasury Department. Lawton and the BoB seem to have grown up together. He served as its acting assistant director in 1935, and remained on its staff when it was transferred to the newly created Executive Office of the President in 1939. Lawton became assistant director of BoB in 1949 and director the following year. He served in that position until the end of the Truman administration in 1953.

J. Robert Oppenheimer (1904-1967): Golden recounts seven conversations with Oppenheimer, three of which are reproduced in this volume. Oppenheimer was then near the peak of his influence, having been director of the Institute for Advanced Study at Princeton and Chairman of the General Advisory Committee to the Atomic Energy Commission since 1947. He was born in New York City and graduated from Harvard University in 1925. Immediately thereafter he spent a year at Cambridge University and a year at Gottingen, where he received his PhD in 1927. Oppenheimer is often credited, along with Rabi, for introducing “the new physics” including both quantum mechanics and what Rabi referred to as the European research style to a rising generation of American physicists. For two years after returning from Europe in 1929, he held concurrent positions in the physics departments at the California Institute of Technology and the University of California, Berkeley, becoming a full time member of the faculty at the latter institution in 1931. From 1943-45 he took a leave of absence to become director of the Los Alamos
Laboratory, and departed permanently from Berkeley in 1947 as director of the Institute for Advanced Study. Oppenheimer became the center of considerable acrimony when, in 1953, a special panel of the Atomic Energy Commission ruled that he should be stripped of his security clearance and his membership on the General Advisory Committee on the grounds that he was a security risk, a ruling later confirmed by the full commission. The U.S. government offered an implicit apology for what many observers regarded as the baseless accusations of the early 1950s when, in December 1963, President Lyndon Johnson presented him with the Atomic Energy Commission’s prestigious Fermi award, an action that had been approved by President John Kennedy shortly before his assassination. Oppenheimer retained his position as director of the Institute for Advanced Study until his death. His non-technical books include: *Science and Common Understanding* (1954) and *The Open Mind* (1955).

**Kenneth S. Pitzer (1914-1996):** Golden’s single interview with Pitzer, at that time director of the Atomic Energy Commission’s research division, is reproduced in this volume. Pitzer was born in Pomona, California, received his BS from the California Institute of Technology and his PhD in chemistry from the University of California, Berkeley, in 1937. He joined the Berkeley faculty that same year where, except for occasional sabbaticals and a year as assistant dean of the college of letters and science, he remained until 1961. During World War II (1943-44) he was on leave of absence as technical director of OSRD’s Maryland Research Laboratory, and served in the position the position at the AEC where Golden met him from 1949-51. Pitzer was president of Rice University from 1961-68 and president of Stanford University from 1968-70. In 1971 he returned to Berkeley as professor of chemistry. Pitzer was a member of the General Advisory Committee to the Atomic Energy Commission from 1958-65, serving as its chair from 1960-62. He was a member of the President’s Science Advisory Committee from 1965-68.

**Isidor I. Rabi (1898-1988):** Golden’s recorded two interviews with Rabi, the first two of which are reproduced in this volume. In 1950, he had been a member of the physics department at Columbia University for 23 years, and was to remain associated with that institution for the remainder of his career. Rabi was born in Austria and brought to the United States as an infant. He received his BS from Cornell University, and his PhD from Columbia in 1927. Immediately thereafter he studied for two years at various European centers, before returning to join the Columbia faculty in 1927. Rabi is often credited, along with Oppenheimer, for introducing “the new physics” including both quantum mechanics and what he referred to as the European research style to a rising generation of American physicists. He was the single recipient of the Nobel Prize in Physics in 1944. During World War II, he served concurrently as associate director of the MIT Radiation Laboratory under DuBridge, and as special adviser to the Oppenheimer, director of the Los Alamos Laboratory. From 1946-56 he was a member of the General Advisory Committee to the Atomic Energy Commission, succeeding Oppenheimer as its chairman in 1952. He succeeded DuBridge as chairman of the Scientific Advisory Committee to the Office of Defense Mobilization in 1955, and served until Killian was appointed full time presidential science adviser in 1957. Rabi is credited with being an originator of several ideas that evolved into significant scientific institutions, among them: the Brookhaven National Laboratory, the European Center for Nuclear Research (CERN), and the NATO science program. He is also credited with having been an influential, though unofficial adviser to Dwight Eisenhower during the four years when Eisenhower was president of Columbia University. Rabi became university professor at Columbia in 1964, a position from which he retired three years later.

**Herman A. Spoehr (1885-1954):** Golden’s single meeting with Spoehr, who had recently retired as chairman of the Plant Biology Division at the Carnegie Institution of Washington to assume the position as scientific adviser to the Undersecretary of State, is reproduced in this volume. He was born in Chicago and received his bachelors degree from the University of Chicago in 1902. After two years of
study in Europe, he returned to the University of Chicago, where he received his PhD in chemistry in 1909. In 1910 he joined the Carnegie Institution’s Plant Physiology Laboratory and, except for occasional sabbaticals, remained there until his retirement. Spoehr left the State Department in 1951 due, according to Golden, because of his frustration at not being able to establish the foreign scientific liaison offices he had envisioned during their October 20, 1950, meeting.

Elmer B. Staats (1914-): Staats was one of the most important individuals associated with Golden’s consultancy, even though Golden’s index to his memoranda list only four conversations. As deputy director of the Bureau of the Budget, he was the senior-most government official who remained in close touch with Golden’s activities. He facilitated access to high level civilian and military officials, and saw to it that Golden’s recommendations to the president and the National Science Board reached their intended destinations. Staats was born in Richfield, Kansas, graduated from McPherson College, and received his PhD in public administration from the University of Minnesota in 1939. He joined the BoB that same year, becoming deputy director in 1950. Staats left the BoB in 1966 to become Comptroller General of the United States, a position he retained until 1981. He served as President of the Harry S. Truman Scholarship Foundation from 1981-1984 and became chairman of its board of trustees in 1984, a position he retains. Staats contributed an essay to William Golden’s *Science Advice to the President* (Pergamon, 1980) entitled, “Reconciling the Science Advisory Role with Tensions Inherent in the Presidency.”

Irvin Stewart (1899-1990): Golden had two meetings with Stewart, the first of which took place on October 25 in the company of Lee DuBridge and James Killian and is reproduced in this volume. At that time Stewart had been president of the University of West Virginia for two years and was also serving as chairman of the President’s Communications Policy Board. Two years earlier, he had been head of an ad hoc Committee on Plans for Mobilizing Science under the auspices of the Research and Development Board. Stewart was born in Fort Worth, Texas, graduated from the University of Texas, and received his PhD in government from Columbia University in 1926. He served successively on the faculties of the University of Texas and the American University in Washington, DC, from 1926-30. From 1930-34, he was with the Treaty Division of the Department of State, and from 1934-46 held various positions with the Federal Communications Commission. Stewart was detailed to the National Defense Research Committee as Executive Secretary under James B. Conant in 1940, and retained that position when the Committee became one of two units of the newly created OSRD a year later. He was chair of one of the four committees (the Committee on Publication of Scientific Information) convened by Vannevar Bush in to respond to the four questions addressed to him in a November 17, 1944, letter from President Franklin Roosevelt. The reports of those committees are appended to, and provided the basis for, *Science - the Endless Frontier*. Stewart served as president of the University of West Virginia from 1946-58, and subsequently as Professor of Government at that institution, until his retirement in 1967. He was author of *Organizing Scientific Research for War*, the official history of the OSRD, published in 1948.

Theodore von Karman (1881-1963): Golden’s single conversation with von Karman is reproduced in this volume. A year earlier, von Karman had retired from the directorship of the Guggenheim Aeronautical Laboratories at the California Institute of Technology, but retained his position as chairman of the Scientific Advisory Board to the Chief of Staff of the U.S. Air Force which he had held since 1944. Within a year, he was also to become a member of the newly created NATO Scientific Advisory Group. Von Karman was born in Budapest, Hungary, and graduated from the Royal Technical University in that city in 1902. He received his PhD degree in physics from Gottingen in 1908, and taught at that university for the next four years. From 1912-29 he was director of the Aeronautical Institute at the University of Aachen, although he took a leave of absence from 1915-18 to serve as a
lieutenant in the Austro-Hungarian army. He emigrated to the United States in 1930 to become director of the Guggenheim Laboratories, where he remained until his retirement.

Alan T. Waterman (1892-1967): Golden recorded two meetings with Waterman, the first of which is reproduced in this volume. At the time of both interviews, Waterman was deputy director and chief scientist at the Office of Naval Research (ONR). By the end of Golden’s consultancy in late April 1951, he had been sworn in as director of the National Science Foundation and designated as one of three statutory members of the Scientific Advisory Committee to the Office of Defense Mobilization. Waterman was born in Cornwall-on-Hudson, New York, and received both his BS and PhD in physics from Princeton University, the latter in 1916. He taught for a year at the University of Cincinnati, before joining the U.S. army in 1917, where he ultimately became attached to the Scientific and Research Division of the Signal Corps. Waterman joined the physics faculty at Yale University in 1919, where he remained until 1946. He took a leave of absence during World War II to join the OSRD’s Office of Field Science, eventually becoming its head. Waterman was appointed chief scientist at ONR shortly after that agency was created in 1946, and in that position is credited with establishing the peer review system that later became the linchpin of NSF’s basic research support policy. Waterman was NSF director for 12 years, twice as long as any of his successors only two of whom (Leland Hayward and Erich Bloch) served out his entire six year term. His final two years as director (1961-63) were made possible only because of a special Act of Congress, requested by President John Kennedy, which exempted him from the statutory retirement age of 68, then in effect for federal employees.
NOTES ON SELECTION OF MEMORANDA

During the course of his consultancy, William T. Golden spoke with over 150 individuals, many of them on more than one occasion. A complete list of those individuals, together with the dates of the relevant conversations, appears in a separate appendix. Preparing a definitive edition of the more than 200 memoranda that resulted from those conversations, consistent with recognized scholarly norms, would be a daunting proposition. This volume makes no pretense of being either definitive or scholarly. Rather, it has been compiled with the expectation that a variety of readers will be interested in a limited but still representative selection of Golden’s chronicle of a critical era.

An editor’s biases are necessarily betrayed by the act of selecting a small fraction of historical documents from an abundance of riches. Two selection criteria were used, both of which reflect this editor’s Whig-historical bias. First, memoranda were selected with a view toward providing significant insights into issues, organizations, or institutions that have remained important to science and science policy. Second, with two possible exceptions, only those memoranda were selected that recount conversations with individuals whose names and accomplishments remain familiar to a reasonably wide circle of potential readers with at least a passing knowledge of the history of science and science policy since World War II.

As an illustration of the use of the first criterion: although Golden seems to have devoted more time and energy to the problems of the Research and Development Board (RDB) than to any other single set of issues, none of his memoranda dealing wholly or primarily with that troubled organization were selected for inclusion. The RDB ceased to exist more than 40 years ago, and most of its organizational, personnel, or fiscal problems that were of such burning interest to many of Golden’s interlocutors have little currency today. By the same token, occasional passages from selected memoranda (such as Vannevar Bush’s lengthy October 24, 1950, discourse on developments in anti-tank weaponry or the status of research on a promising new grenade) have been deleted on the grounds that the somewhat arcane information they recount would be of interest only to specialists.

The second selection criterion is closely related to the first. Most of the insights on perennial issues and institutions that Golden’s memoranda recount were the results of conversations with individuals who, as “insiders,” made significant contributions to science and also had an undeniable, lasting influence on the course of U.S. science policy in the decade following World War II, and often longer. As a result, many of their names remain familiar today. However, Golden’s charge from the Bureau of the Budget was concerned with the short-term problem of mobilizing science for the Korean conflict and a possible wider war, rather than with formulating a broadly-based, long-term science policy. That he managed to achieve such important long-term results under those circumstances is remarkable. Nevertheless, it was the short-term charge from the Bureau that necessarily determined his course of action. Thus, he sought out people who were qualified to provide information and insights relevant to that charge either by virtue of their positions in the civilian and military departments of the government or, in the case of non-government scientists, their experience with military research. Although many of these individuals gave him substantial assistance in conducting the inquiries requested by the Bureau of the Budget, few had the insights or “big picture” perspectives of a James B. Conant or an I. I. Rabi, for example. Nor did many have the same opportunity to influence science policy decisively. Justly or not, the names of a majority of those whom Golden spoke with 45 years ago have long since been forgotten save by those with whom they had close personal associations; justifiably or not, few of those names appear as principles in this selection of memoranda.

Two memoranda have been included that do not satisfy these criteria rigorously: one recounting a conversation with Herman Spohr on October 20, 1950; the second recounting a conversation with Leslie Groves on December 19, 1950.
The Spoehr interview was selected because, together with a December 21, 1950, memorandum on a conversation with Theodore von Karman, it indicates that there was at least some high-level recognition 45 years ago of the importance of viewing both U.S. science and U.S. science policy in an international context.

As to Groves, as head of the Manhattan Project during World War II he had, for better or worse, an undeniable although possibly unintended impact on what was to follow. Although he had retired from active military service by 1950 and retained little or no influence in government, his attitudes toward what was then occurring and toward some of the still influential scientists with whom he had worked five years earlier are intriguing, at least to one admittedly biased editor.

**REPOSITORIES OF THE MEMORANDA**

Some readers may take issue not only with the above noted selection criteria, but also with the results they have yielded in terms of the specific memoranda reproduced in this volume. However, one of this editor’s objectives has been to whet the appetites of readers sufficiently to induce a reasonable number of them to consult the full collection of memoranda. Fortunately, Golden has made that possible by depositing complete bound sets of photocopies, referenced as *GOVERNMENT MILITARY-SCIENTIFIC RESEARCH: Review for the President of the United States, 1950-51*, in five locations: the Library of Congress (Washington, DC), The Center for the History of Physics of the American Institute of Physics (College Park, Maryland), the Dwight D. Eisenhower Library (Abilene, Kansas), the Herbert C. Hoover Library (West Branch, Iowa), and the Harry S. Truman Library (Independence, Missouri).

Conceivably, one or more of those who become intrigued enough to consult the full collection in one of these repositories will decide to prepare a more definitive edition than is represented by this compilation.

William A. Blanpied

**GLOSSARY OF ABBREVIATIONS**

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AEC</td>
<td>Atomic Energy Commission</td>
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<tr>
<td>BoB</td>
<td>Bureau of the Budget</td>
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<td>Caltech</td>
<td>California Institute of Technology</td>
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<td>GAC</td>
<td>General Advisory Committee (to the Atomic Energy Commission)</td>
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<td>JCS</td>
<td>Joint Chiefs of Staff</td>
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<td>MIT</td>
<td>Massachusetts Institute of Technology</td>
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<td>NAS</td>
<td>National Academy of Sciences</td>
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<td>NRC</td>
<td>National Research Council</td>
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<td>NRL</td>
<td>Naval Research Laboratory</td>
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<td>NSB</td>
<td>National Science Board</td>
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<td>NSF</td>
<td>National Science Foundation</td>
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<td>NSRB</td>
<td>National Security Resources Board</td>
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<td>ODM</td>
<td>Office of Defense Mobilization</td>
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<td>ONR</td>
<td>Office of Naval Research</td>
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<td>OSRD</td>
<td>Office of Scientific Research and Development</td>
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<td>RDB</td>
<td>Research and Development Board</td>
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<td>SAC</td>
<td>Scientific Advisory Committee (to the Office of Defense Mobilization)</td>
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<td>WSEG</td>
<td>Weapons Systems Evaluation Group</td>
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## CHRONOLOGIES: MAY 1950-APRIL 1951

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<td>July</td>
<td>8 MacArthur Supreme Commander of UN forces in Far East</td>
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<td>19 Truman addresses nation by radio, requests $11.3 billion emergency defense</td>
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<td>29 UN forces hold Pusan perimeter</td>
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### 1951

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<th>Month</th>
<th>Date</th>
<th>Event</th>
<th>Conversation or Document</th>
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<tbody>
<tr>
<td>January</td>
<td>3</td>
<td>Second NSB meeting</td>
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<td></td>
<td>5</td>
<td>Meeting at BoB with Conant, Staats, Carey, Stauffacher</td>
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<td></td>
<td>8</td>
<td>Conversation with Rabi</td>
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<td>19</td>
<td>Conversation with DuBridge</td>
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<td></td>
<td>25</td>
<td>UN forces begin advance northward</td>
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<td>February</td>
<td>13-14</td>
<td>Third NSB meeting</td>
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<td>15</td>
<td>“Memorandum on Program for National Science Foundation”</td>
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<td></td>
<td>20</td>
<td>Conversation with Bronk</td>
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<td>22</td>
<td>Conversation with Buckley</td>
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<td>23</td>
<td>Defense Mobilization director Wilson refers to SAC in radio address</td>
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<td>26</td>
<td></td>
<td>Conversation with Oppenheimer</td>
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<td>March</td>
<td>1</td>
<td>Conversation with Bush</td>
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<td>8-9</td>
<td>Third NSB meeting; Waterman nominated as NSF director</td>
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<td>14</td>
<td>UN forces recapture Seoul</td>
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<td>22</td>
<td>Conversation with Oppenheimer</td>
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<td>24</td>
<td>Conversation with Buckley</td>
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<td>April</td>
<td>5</td>
<td>MacArthur, in letter to Representative Joseph Martin, denounces US</td>
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<td>policy in Korea</td>
<td>Waterman sworn in as NSF director</td>
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<td>6</td>
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<td>Conversation with Buckley</td>
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<td>8</td>
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<td>Buckley accepts SAC chairmanship</td>
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<td></td>
<td>Truman fires MacArthur</td>
<td>Truman letter to Buckley offering SAC chairmanship</td>
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<td>11</td>
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<tr>
<td>19</td>
<td>MacArthur address joint session of Congress</td>
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PERSONS CONSULTED BY WILLIAM T. GOLDEN,
WITH DATES OF CONVERSATIONS*

Archibald Alexander, Under Secretary of Army (11-21-50, 11-27-50, 2-14-51, 3-19-51)
W. Park Armstrong, Intelligence Division, Department of State (11-1-50, 11-6-50)
Robert F. Bacher, Chairman, Department of Mathematics, Physics and Astronomy, California
    Institute of Technology (12-6-50, **12-21-50**, 2-3-51, 2-8-51, 4-27-51)
William L. Bayer, Office of the Joint Chiefs of Staff (2-15-51, 2-20-51)
Lloyd Berkner, Department of Terrestrial Magnetism, Carnegie Institution of Washington (12-21-50)
A. W. Betts, Chief, Atomic Energy Section, U.S. Army Logistics (2-14-51)
John Boland, Research Division, Bureau of Ordnance, U.S. Navy (2-15-51, 2-27-51)
William Borden, Staff Director, Joint Committee on Atomic Energy (4-27-51)
Marion Boyer, General Manager, Atomic Energy Commission (4-27-51)
James Bridges, Bureau of Ordnance, U.S. Army (2-27-51)
Bernard Brodie, Professor of International Relations, Yale University (9-28-50, 11-4-50)
Detlev W. Bronk, President, Johns Hopkins University and National Academy of Sciences
    (**11-22-50**, 12-7-50, 1-2-51, **2-20-51**, 4-26-51)
Charles Brown, General Counsel, Research and Development Board (11-8-50)
Oliver E. Buckley, President, Bell Telephone Laboratories (11-17-50, **2-22-51**, 2-27-51, 3-10-51, 3-20-51,
    **3-22-51**, 3-23-51, 3-28-51, 3-30-51, 3-31-51, **4-8-51**, **4-10&11-51**, 4-26-51)
William A. M. Burden, Deputy Air Force Member, Research and Development Board
    (1-30-51, 2-18-51, 3-21-51, 4-24-51)
Bureau of Budget Hearing on NACA budget (11-7-51)
Vannevar Bush, President, Carnegie Institution of Washington
    (**10-24-50**, **12-5-50**, 12-29-50, **3-1-51**, 4-26-51)
William D. Carey, Bureau of the Budget (1-5-51)
Ralph Clark, Assistant Head, Scientific Section, Central Intelligence Agency (2-15-51)
Robert Clark, Chief, Manpower Division, National Security Resources Board (11-29-50)
Lucius Clay, Deputy Director, Office of Defense Mobilization (**1-19-51**, 1-26-51)
Karl Compton, Chairman of the Corporation, Massachusetts Institute of Technology (11-9-50)
James B. Conant, President, Harvard University (**12-14-50**, 12-29-50, **1-5-51**)
E. U. Condon, Director, National Bureau of Standards (10-31-50)
Robert E. Connick, Department of Chemistry, University of California (3-6-51)
John Connor, Vice-President, Merck and Company (2-1-51, 4-13-51, 4-27-51)
Henry Cornell, Head of Planning Division, Research and Development Board (11-10-50)
Neal Crane, Head of Program Division, Research and Development Board (11-13-50)
Richard Crichlow, Navy Member, Research and Development Board (11-15-50)
Maurice Curts, Navy Member, Research and Development Board (11-15-50)
Francis Darwin, Technical Director, Guided Missiles Committee, Research and Development
    Board (11-14-50)
Arthur C. Davis, Staff Director, Joint Chiefs of Staff (10-4-50, 12-5-50, 4-24-51).
Homer Davis, Office of the Undersecretary of the Army (2-14-51)
Donald Dawson, Executive Office of the President (1-26-51, 3-20-51, 3-28-51)
Gordon Dean, Chairman, Atomic Energy Commission (10-27-50, 12-28-50, 2-6-51)
George Doriot, President, American Research and Development Corporation (2-14-51, 3-29-51)
Hugh L. Dryden, Administrator, National Advisory Committee for Aeronautics (10-25-50)

* Conversations reproduced in this volume are indicated in **bold face** type.
Ferdinand Eberstadt, former consultant to Department of Defense (4-6-51)
Thomas K. Finletter, Secretary of the Air Force (11-21-50)
Rowan Gaither, Cooley, Crowley, and Gaither, Attorneys, San Francisco (1-27-51, 1-28-51)
T. Keith Glennan, Atomic Energy Commissioner, (2-27-51, 3-7-51, 3-27-51, 4-16-51)
Harold Goldstein, Office of Education, Federal Security Agency (10-31-50)
N.E. Golovin, Assistant to the Director, National Bureau of Standards (10-31-50)
John C. Green, Director, Office of Technical Services, Department of Commerce (1-31-51)
Crawford Greenewalt, President, Du Pont Company (3-5-51)
Jesse Greenstein, Professor of Astronomy, California Institute of Technology (9-9-50)
Alan Gregg, Director of Medical Sciences, The Rockefeller Foundation (2-8-51)
Leslie R. Groves, former Director, Manhattan District, U.S. Army Corps of Engineers (12-17-50)
Lawrence Hafstad, Director, Reactor Development Division, Atomic Energy Commission
(11-8-50, 12-4-50, 1-3-51, 2-6-51)
Wilson Harwood, Administrative Officer, National Bureau of Standards (2-2-51)
Caryl P. Haskins, President, Haskins Laboratories (12-1-50)
L. J. Henderson, Associate Director, RAND (2-7-51)
Eric Hodgins, President’s Material Policy Commission, (3-14-51)
D. Luke Hopkins, Vice-President and Trustee, Johns Hopkins University (3-30-51, 4-3-51)
Fred Hovde, President, Purdue University (1-10-51)
Henry R. Hoyt, Assistant Director for Administration, Los Alamos Scientific Laboratories (9-21-51)
Ellis A. Johnson, Director, Operational Research Organization, U.S. Army (10-31-50, 11-21-50)
Ralph Johnson, Hughes Aircraft Corporation (9-8-50)
Joint Secretaries of the Armed Services (11-21-50)
Roger W. Jones, Assistant Director, Legislative Reference, Bureau of the Budget
(See Documents Section: 2-6-51)
Mervyn J. Kelly, Vice-President, Bell Telephone Laboratories (12-1-50, 12-18-50, 1-21-51, 2-26-51, 3-28-51)
Charles Kidd, Public Health Service (10-20-50, 10-24-50, 1-30-51)
James R. Killian, Jr., President, Massachusetts Institute of Technology (10-25-50, 12-19-50, 12-30-50, 1-9-51, 3-2-51, 3-24-51)
Daniel Kimball, Undersecretary of the Navy (1-5-51, 3-9-51)
Alexander King, UK Science Mission (4-26-51)
Ernest O. Lawrence, Professor of Physics and Director or the Radiation Laboratory, University of California (12-17-50)
Frederick J. Lawton, Director, Bureau of the Budget (9-6-50, 3-28-51, 3-29-51)
Charles C. Lauritsen, Professor of Physics, California Institute of Technology (12-21-50)
Robert LeBaron, Chairman, Military Liaison Committee to the Atomic Energy Commission (3-20-51)
Marx Leva, Assistant Secretary of Defense (2-1-51, 3-19-51, 3-23-51)
Fred E. Levi, Bureau of the Budget (1-5-51)
Alfred Lee Loomis, Wall Street, New York City (11-16-50, 12-17-50, 12-30-50, 12-31-50, 1-21-51)
Farnsworth Loomis, Natural Sciences Division, The Rockefeller Foundation (4-9-51)
Henry Loomis, Assistant to the Director, Research and Development Board (11-10-50, 11-13-50, 12-18-50, 1-30-51, 3-9-51, 4-24-51)
Robert A. Lovett, Deputy Secretary of Defense (10-17-50, 2-16-51, 3-7-51)
W. Angus Macfarland, UK Science Mission (4-26-51)
Richard Mandelkorn, Special Weapons Project, Sandia Laboratories (9-21-50)
John Manley, Assistant Director for Research, Los Alamos Scientific Laboratory (9-21-50, 1-10-51)
J. Kenneth Mansfield (4-27-51)
Ward Maris, *Army Member, Research and Development Board* (2-14-51)
Donald Marquis, *Professor of Psychology, University of Michigan* (3-7-51)
A. C. McAuliffe, *Chief of Chemical Corps, U.S. Army* (2-19-51, 2-28-51)
Brian McMahon, *U.S. Senate, Member, Joint Committee on Atomic Energy* (4-25-51)
Joseph T. McNarney, *Chairman, of Management Committee, Office of the Secretary of Defense* (11-27-50, 12-6-50, 3-7-51)
W. J. McNeil, *Assistant Secretary of Defense* (1-4-51, 1-16-51, 2-1-51)
George Merck, *Chairman, Merck and Company* (4-13-51)
Ruth Miller, *President’s Materials Policy Commission* (3-14-51)
K. D. Nichols, *Deputy Director for Guided Missiles, Department of Defense* (4-17-51)
W. Albert Noyes, *Professor of Chemistry, University of Rochester* (2-19-51)
Hugh Odishaw, *Assistant to the Director, National Bureau of Standards* (10-31-50)
Bruce Old, *Arthur D. Little, Inc.* (11-29-50, 1-10-51)
J. Robert Oppenheimer, *Director, Institute for Advanced Study* (12-21-50, 1-2-51, 2-26-51, 3-7-51, 3-14-51, 3-20-51, 3-30-51)
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Richard Parmenter, *Coordinator of Research, Cornell University* (12-13-50)
Gerald Phillips, *Air Force Member, Research and Development Board* (11-14-50)
Kenneth Pitzer, *Director of Research Division, Atomic Energy Commission* (11-1-50)
Don K. Price, *Associate Director, Public Information Clearing House* (10-19-50, 2-9-51)
Palmer Putman, *Consultant to the Undersecretary of the Army* (3-19-51, 4-2-51)
George Powers, *Vice President for Engineering, Curtis-Wright Corporation* (1-26-51)
Philip N. Powers, *Scientific Manpower Advisory Committee, National Security Resources Board* (2-27-51, 3-8-51)
I. I. Rabi, *Professor of Physics, Columbia University* (11-16-50, 1-5-51, 3-23-51)
Research and Development Board Meeting (11-8-50)
Cornelius P. Rhoads, *Director, Sloan-Kettering Institute* (11-3-50)
Louis Ridenour, *Special Adviser to the Secretary of the Air Force* (10-11-50, 12-8-50, 4-24-51, 4-25-51)
Walter M. Rudolph, *Assistant to the Scientific Adviser to the Undersecretary of State* (10-20-50)
Robert Russell, *former President, Standard Oil Development Company* (2-14-51, 3-23-51)
William Schaub, *Estimates Division, Bureau of the Budget* (1-18-51, 3-6-51)
Frederick C. Schuldt, * Examiner, Estimates Division, Bureau of the Budget* (10-5-50)
Willis Shapley, *Examiner, National Security Branch, Estimates Division, Bureau of the Budget* (10-4-50, 10-5-50)
Timothy E. Shea, *Vice-President for Personnel, AT&T Company* (3-10-51)
George Shortley, *Deputy Director, Operational Research Organization, U.S. Army* (11-21-50, 12-6-50, 12-13-50)
A. Siepert, *Executive Officer, National Institutes of Health* (2-20-51)
Robert J. Smith, *Deputy Chairman, National Security Resources Board* (10-19-50, 11-29-51)
Roy Snapp, *Secretary of the Atomic Energy Commission* (10-24-50)
T. Solberg, Director, Office of Naval Research (1-10-51)
Sidney Souers, Executive Secretary, National Security Council (8-30-50, 8-31-50, 9-6-50, 12-19-50, 4-19-51)
Herman A. Spoehr, Science Adviser to the Undersecretary of State (10-20-50)
Elmer B. Staats, Assistant Director, Bureau of the Budget (9-6-50, 10-17-50, 1-5-51, 4-24-51)
Charles B. Stauffacher, Executive Assistant Director, Bureau of the Budget (8-30-50, 8-31-50, 9-6-50, 10-4-50, 10-25-50, 12-6-50, 1-5-51, 3-28-51, 3-29-51, 4-4-51, 4-10&11-51, 4-27-51)
John Steelman, The Assistant to the President (12-27-50)
Irvin Stewart, President, University of West Virginia (10-25-50, 11-14-50)
Marshall Stone, Professor of Mathematics, University of Chicago (12-8-50)
David H. Stowe, Administrative Assistant to the President (9-6-50, 10-31-50)
Julius A. Stratton, Chairman, Department of Physics, Massachusetts Institute of Technology (1-9-51)
Lewis L. Strauss, Atomic Energy Commissioner (12-11-50, 3-17-51)
Guy Suits, Vice-President and Director of Research, General Electric Company (12-30-50)
Richard Teller, Navy Member, Research and Development Board (11-14-50)
Charles Thomas, Executive Vice-President, Monsanto Chemical Company (12-18-50)
L. T. E. Thompson, Director, Inyokern Project (12-7-50, 1-9-51)
Merle Tuve, Director, Department of Terrestrial Magnetism, Carnegie Institution of Washington (2-9-51)
M.H. Trytten, Director, Office of Scientific Personnel, National Research Council (10-30-50)
E.H. Veatch, Assistant Chief, National Security Branch, Estimates Division, Bureau of the Budget (10-5-50)
Theodore von Karman, Professor of Aeronautical Engineering, California Institute of Technology (12-21-50)
Eric Walker, Executive Secretary, Research and Development Board (11-10-50, 2-1-51)
Alan T. Waterman, Deputy Director and Chief Scientist, Office of Naval Research (11-29-50, 2-9-51)
James E. Webb, Under Secretary of State (10-27-50, 4-26-51)
William Webster, Chairman, Research and Development Board (11-1-50, 11-7-50, 11-29-50, 12-18-50, 1-2-51, 1-4-51, 2-7-51, 2-27-51, 3-16-51, 3-29-51, 4-23-51)
Sidney Weinberg, Deputy Director, Office of Defense Mobilization (4-4-51, 4-27-51)
Walter Williams, Deputy General Manager, Atomic Energy Commission (4-26-51)
Robert E. Wilson, Chairman, Standard Oil of Indiana (12-22-50)
Hamilton W. Wright, Putnam, Heller and Company (1-25-51)