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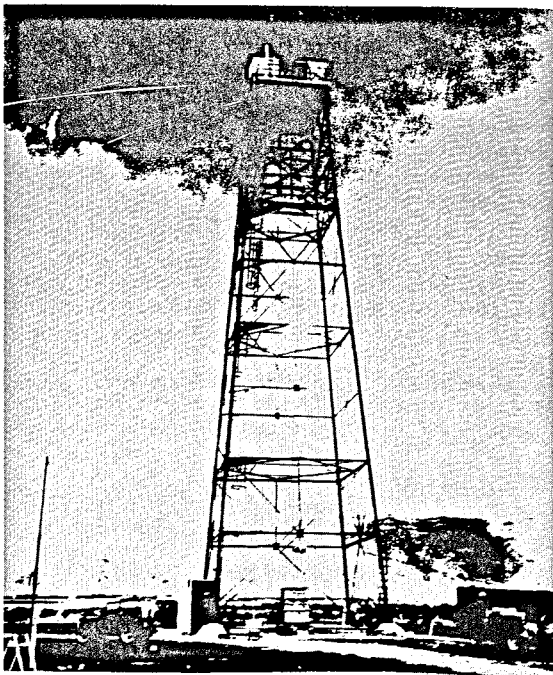
Our *Heritage* in Documents

Our Heritage in Documents has been developed to broaden the appreciation of the federal documentary heritage by both researchers and the general public. In each issue that it appears, Our Heritage in Documents will focus on a single document or a small number of related documents that elucidate an important chapter in our nation's past. Each essay will

discuss the origin and nature of the documents, their importance to our understanding of American history, and how they can be used today. Copies of the documents discussed in this feature are available for use in the National Archives building in Washington, D.C., in some instances at its eleven regional branches or the presidential libraries, or may be purchased.

The President and the Atomic Bomb: Who Approved the Trinity Nuclear Test?

By Roger M. Anders

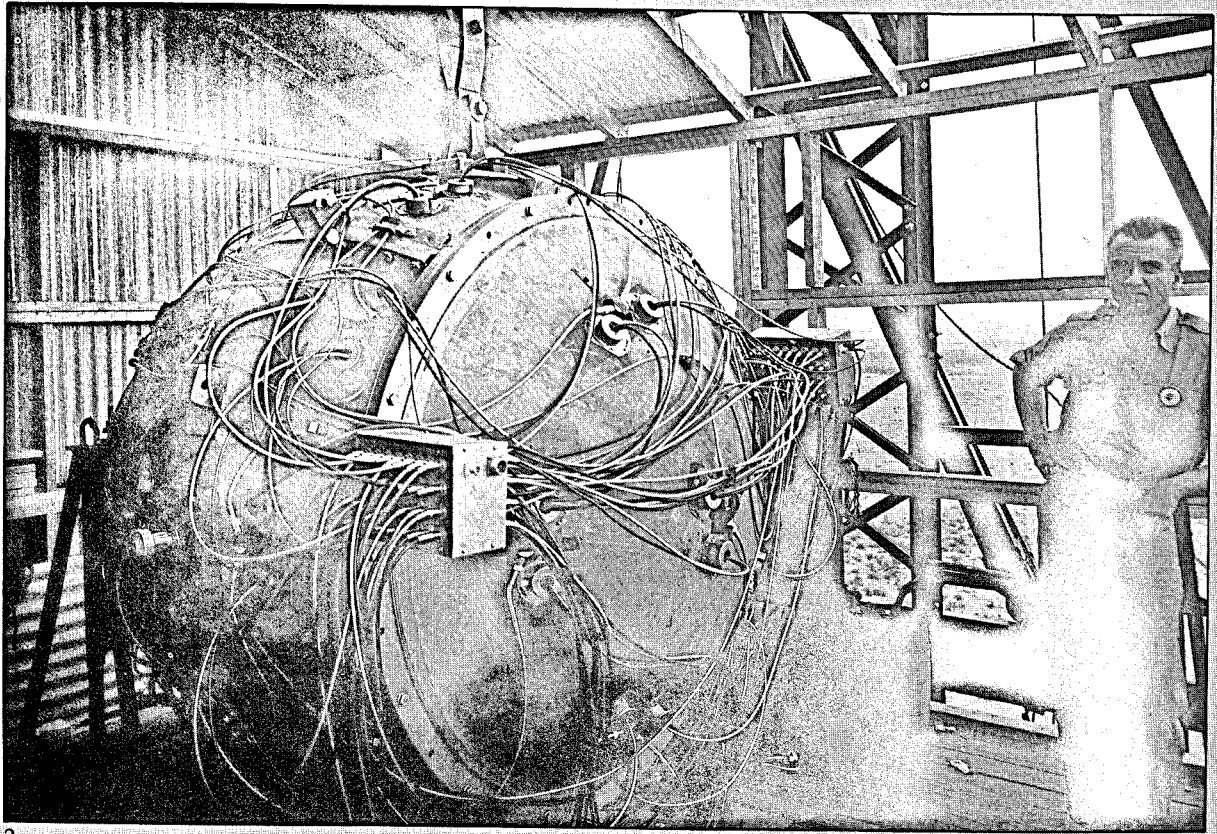


Recently, the manager of the Department of Energy's Idaho Operations Office, Donald Ofte, encountered one of those small mysteries with which history is filled. Testifying to the House Armed Services Committee about nuclear weapons testing activities, Ofte routinely noted that all nuclear weapons tests had been approved by the president of the United States. Even the first nuclear weapons test, the Trinity test of July 16, 1945, which had been conducted prior to a statutory requirement for presidential approval of weapons testing, had received Franklin Roosevelt's approval. Ofte, therefore, was somewhat nonplused when it was pointed out that Roosevelt had been dead for four months when the shot was fired.¹ Perhaps he should have testified that President Harry S. Truman, rather than Roosevelt, had approved the test. Because Ofte and his predecessors had repeatedly assured Congress that Roosevelt had approved it, the issue was of more than passing interest to the department.

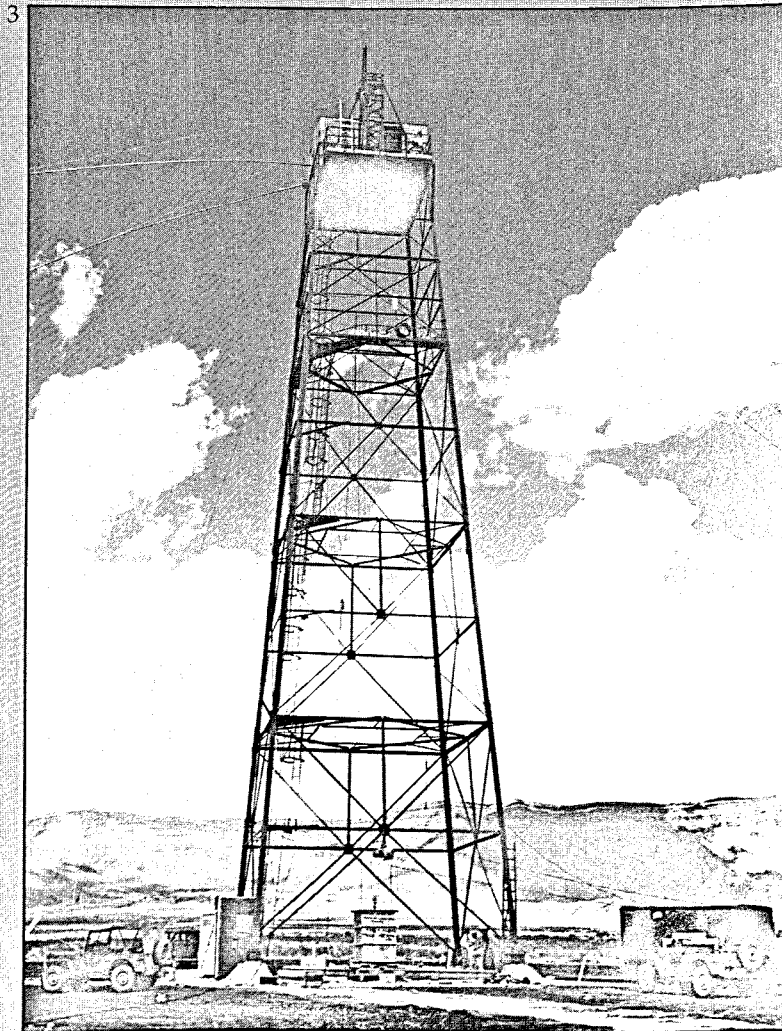
Unable to solve the mystery in the hearing room, Ofte decided to have the department's historian look into it. Accordingly, Chief Historian Jack M. Holl asked me to perform what seemed to be a routine task of providing institutional memory for the department in determining whether Roosevelt or Truman had approved the Trinity test. A review of the secondary literature about the test, however, failed to indicate that the issue had gotten to either of them. Accounts of the test focused on the efforts of laboratory scientists to prepare for the test, on the drama of the countdown followed by the awesome nineteen kiloton blast, or on its diplomatic and military consequences. High-level approval was either treated ambiguously or ignored. The memoirs of Manhattan Project chief

Gen. Leslie R. Groves and J. Robert Oppenheimer inspect the Trinity test site shortly after the explosion.

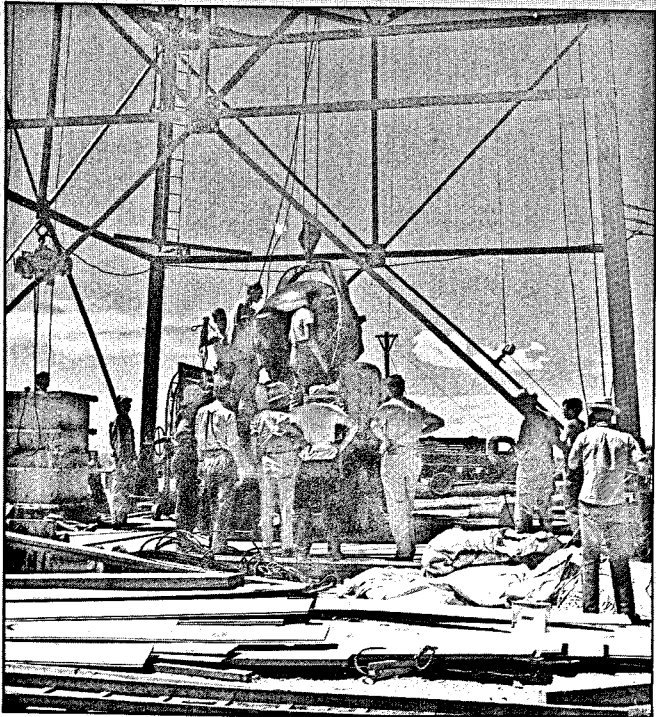




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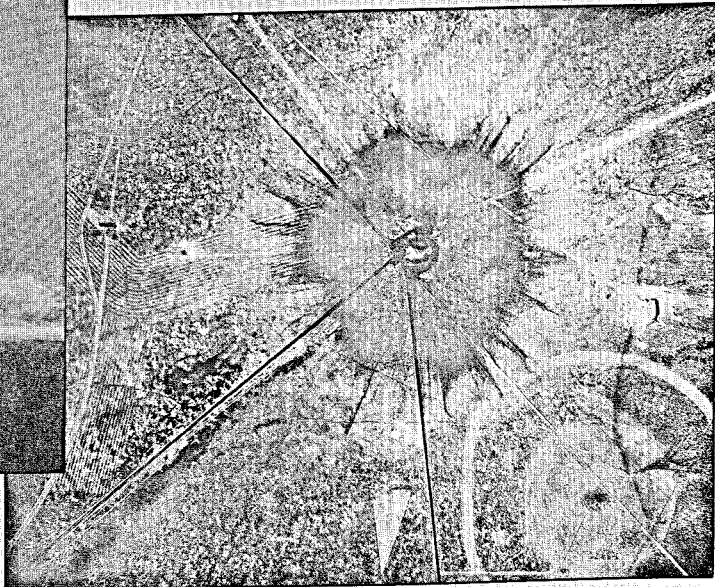


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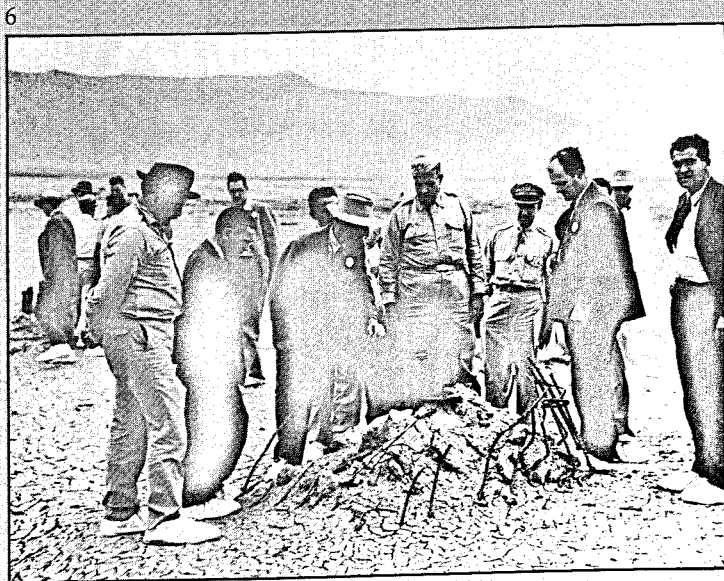
1. A crew readies the Trinity device for placement in the shot tower at Alamogordo, New Mexico.
2. The device in place at the top of the tower. Beside it is Norris Bradbury, who later succeeded Oppenheimer as director of the Los Alamos laboratory.
3. The tower that supported the device for the world's first atomic bomb explosion.



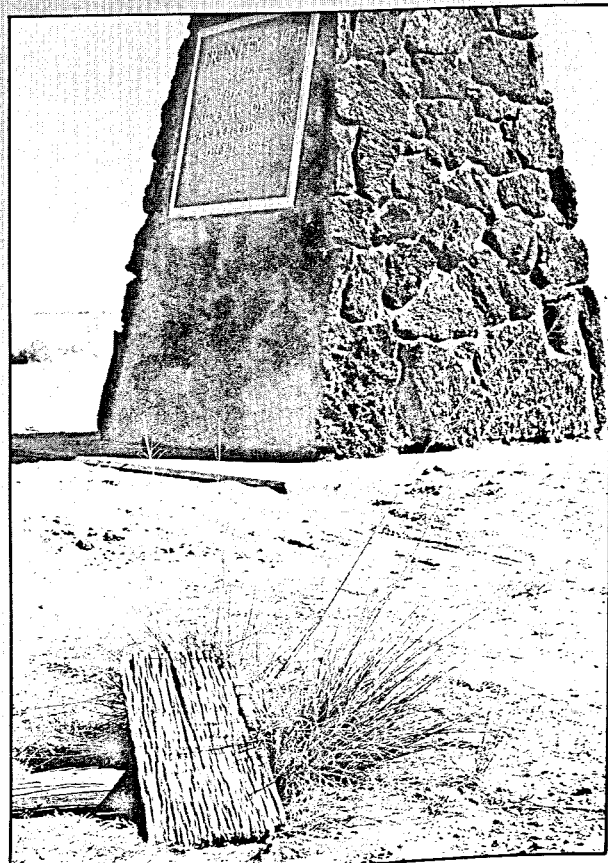
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4. The fireball rises into the air 15 seconds after detonation of the 20-kiloton bomb, July 16, 1945.
5. Aerial view of the crater left by the Trinity test explosion at Alamogordo.
6. General Groves, Los Alamos laboratory director Oppenheimer, and others inspect the Trinity site. Note protective footwear.
7. Ground zero marker at Trinity site. For nearly 20 years the site was marked only by the simple wooden sign in the foreground.

General Leslie R. Groves and those of his subordinate, General Kenneth D. Nichols, were also inconclusive.² Perhaps, then, the test had been conducted without any presidential action.

The Trinity test, however, was a key event on the road to Hiroshima and Nagasaki. Until it was overshadowed by Hiroshima and Nagasaki on August 6 and 9, 1945, Trinity was the single most important accomplishment of the Manhattan Project. The test conclusively demonstrated that the atomic bomb effort was not an expensive failure: It proved that the implosion-type bomb worked more efficiently than many had predicted. It began a new era in warfare and gave American leaders a weapon that promised a quick end to World War II. And it obviated the need to launch an invasion of Japan and made reliance upon the manpower of the Soviet Union for the defeat of Japan superfluous. The atomic bomb also loomed as a potential diplomatic weapon that might strengthen the American position in the negotiations that would shape the postwar world.³ In light of these factors, the Trinity test certainly seemed worthy of presidential attention. Working under the assumption that Roosevelt or Truman had indeed approved it, I began a search for the primary source documents that would either prove or refute this hypothesis.

The silence of the secondary literature and memoirs indicated that, assuming that either Roosevelt or Truman had approved it, the Trinity test came to the president in a manner that produced an elusive documentary record. Even on straightforward issues, modern public records rarely provide definitive answers in single documents. Not only did the test seem to reach the president in an ambiguous manner, but it also involved a new technology about which much was being learned and about which much was still unknown. A presidential decision may well have been rendered gradually over time as Manhattan Project scientists produced new data. Or, because the Manhattan Project had tremendous bureaucratic momentum by late 1944, the decision may have been not to intervene in complex scientific activities that would soon reach a logical culmination. The language embodying a decision, if it existed, was likely to be technical and formal. Thus, if presidential approval of the Trinity test could be found, it would probably be contained in a number of documents and in obscure or ambiguous language within those documents. Solving the mystery of the approval of the Trinity test would require the careful analysis of a number of documents and interpretation of language that might seem relatively opaque.

The volume of records created by the wartime

atomic bomb project total over twelve thousand linear feet. Even finding a single primary document with a bold, easily discerned message would be a huge task in such a documentary mountain. The size of the mountain had to be reduced substantially before research in primary source documents promised a chance of success. Thus, the secondary literature and memoirs had to be examined for clues that would suggest a place to begin the documentary search. This led back to General Groves, the type of effort he led, and his methods of leadership.

Although the race for the atomic bomb began in 1939 with the discovery of fission, the United States did not engage in an all-out effort until the army entered the project in June 1942.⁴ By this time, the scientist/administrators Vannevar Bush and James B. Conant, who had been responsible for the project, advised President Roosevelt that the time had come to move from laboratory research to plant construction and operation. Because the scientists lacked the expertise and resources for overseeing large-scale construction projects, Roosevelt brought in the army to build the plants. The army assigned the effort to its construction experts, the Corps of Engineers, and in August 1942 the Manhattan Engineer District was created. In September 1942 Groves was selected to lead the army's effort.

Groves had to embark upon an engineering enterprise conducted on "a pressing, almost desperate time schedule" if an atomic bomb was to be created before the end of the war.⁵ In a little under three years, he built an industry greater in scope and complexity than any single contemporary private industrial complex. In August 1942 the atomic industry existed primarily in the realm of scientific theory. By September 1945, plants containing novel industrial processes, and sometimes equipment and parts that had not existed in 1942, had been built and put into operation. Moreover, their output had been fabricated into another entirely novel product, the atomic bomb. To accomplish so much in so little time required a unique combination of scientific, engineering, and military talent working together on a terribly urgent time scale.

In order to gain authority from the highest levels of government and to meld scientists, engineers, and soldiers into a common effort, a committee structure was established. A top policy group consisting of Vice President Henry A. Wallace, Secretary of War Henry L. Stimson, Army Chief of Staff George C. Marshall, Bush, and Conant was set up. President Roosevelt technically headed the top policy group although he never participated in its proceedings. Beneath this group a military policy committee

PROLOGUE

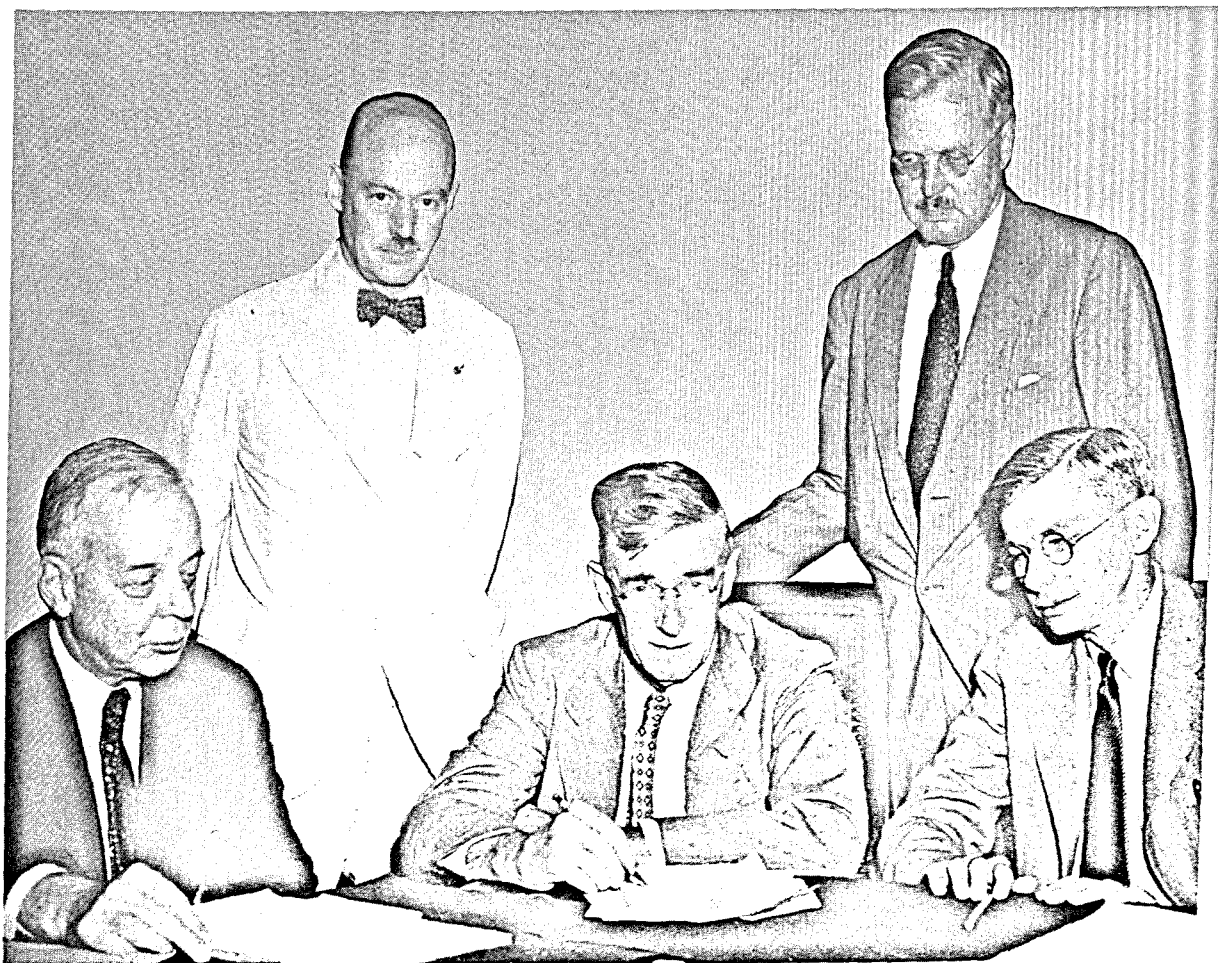
of General Wilhelm D. Styer, Admiral William R. Purnell, Bush, and Conant provided day-to-day guidance over operational activities.⁶ These committees made most of the key decisions of the 1941–43 period.

Groves provided the “driving force” required for transforming committee decision making into a fast-moving project. “An ambitious and aggressive civil engineer,” Groves had the reputation as a “forceful and effective” director of large-scale construction projects, the best known of which was his work on the Pentagon. Officially he was the military officer in charge of the Manhattan Engineer District and the executive officer of the military policy committee. A vigorous individual, certain of his own abilities and willing to make bold decisions, Groves spurred every part of the project and ruthlessly bent all efforts toward the ultimate goal of producing an atomic weapon before the end of the war.⁷ Typical of his boldness was his decision to skip the pilot plant stage and to proceed directly from

laboratory research to the construction of full-scale plants.

Over time, Groves drew more and more project decision making into his hands. He assumed responsibility for decisions about plant construction and operation that might have been the province of the military policy committee, as well as for unforeseen activities such as intelligence and counterintelligence. Although technically bound by the committees, he maintained “direct access” to Marshall and Stimson for use “whenever he saw fit.” By 1945 he had become directly responsible to President Truman, Stimson, and Marshall for the successful employment of the atomic bomb against Japan.⁸ Thus, Groves became an essential participant in virtually all of the high-level decisions of the later stages of the atomic bomb project. On many matters he reported directly to Marshall and Stimson and through them, not through the committee structure, to the president.

Groves, then, was a key participant in any



Defense research group led by Vannevar Bush (center). Also pictured are (left to right) A. N. Richards, J. C. Hunsaker, Harvey H. Bundy, and James B. Conant.

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Gen. Leslie R. Groves's office files provided the primary documentation of presidential approval of the Trinity test.

approval of the Trinity test. If he took the issue of approval of the Trinity test to the president, he probably did so through Marshall or Stimson rather than through the committees. His office files were, therefore, the best place to start a search through primary documents for evidence of a presidential decision.⁹ Narrowing the search to the Groves office files reduced the potential documentary universe from over twelve thousand linear feet to fifty linear feet. Yet this is still a very large documentary haystack through which to search for a vague, ambiguous, and perhaps nonexistent needle.

As project leader, Groves had used methods that cut red tape and delays in decision making. Using General William T. Sherman as a model, he purposely established a small headquarters in Washington with no staff officer system or secretariat to record decisions and ran the project with just a few administrative and clerical assistants. He relied heavily upon verbal instructions and recorded many top-level decisions in formal progress reports sent to the president.¹⁰ Thus, memorandums to files and formal prog-

ress reports might be the documents that would provide key clues to any presidential action on the Trinity test. But where within the Groves office files could they be found?

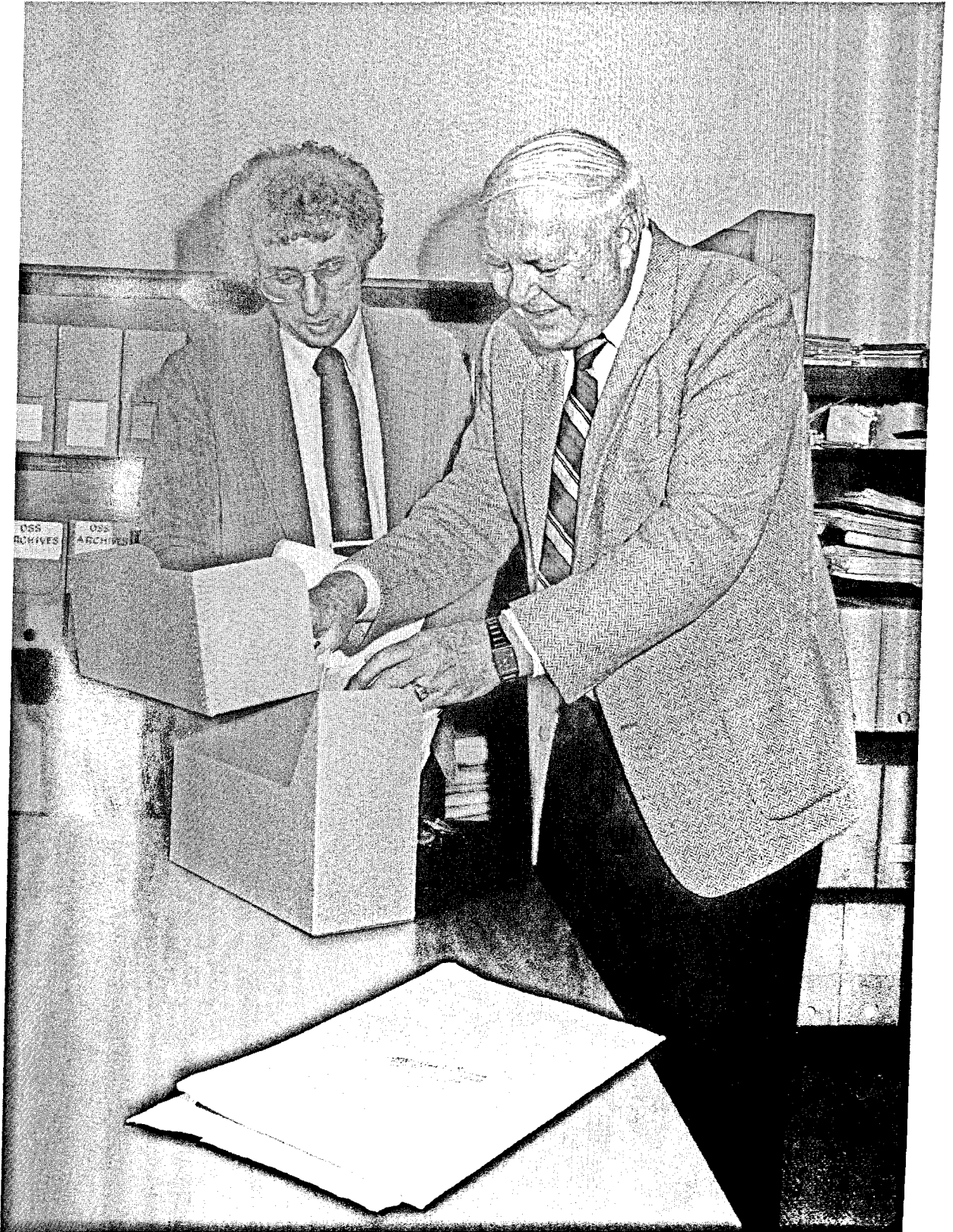
Fortunately, the secondary literature contained some clues. Martin Sherwin's excellent study of the wartime diplomacy of the atomic bomb project reprinted a Groves memorandum account of a meeting with Truman about the atomic bomb as well as Groves's famous report of the Trinity test. Sherwin's book indicated that both documents came from a series of top secret memorandums of special interest to the general.¹¹ This series seemed to have been created to capture high-level actions on the atomic bomb project, so any documentary record about approval of the Trinity test might very well be found in it. The special interest memorandums were kept together in the Groves office files, so fifty linear feet had now shrunk to a few file folders.

Could a starting point be pinpointed even more specifically? Other sources suggested that a progress report that Groves compiled in August 1944 contained discussions of the probable need to conduct the Trinity test. Did it ever reach the president? Looking for it and trying to determine whether it had reached the president provided a specific starting point and a specific research strategy to follow.

With a fixed starting point, the physical search through the Groves office files, which are in the custody of the National Archives and Records Administration, could begin. Archivist Edward J. Reese, whose knowledge of the Groves files is endless, generously contributed his expertise to the search. He quickly located the Groves August 1944 progress report that proved to contain crucial evidence. He also provided a key clue that indicated that a Groves memorandum history of the project was another key document that must be consulted. Reese smoothly guided the search from document to document among the special memorandums. Clues for each succeeding step were gleaned from a careful analysis of each document and its marginalia. Gradually, the basic story emerged, and the mystery was solved. It became clear that both Roosevelt and Truman had approved the Trinity test. Fleshing out the story required a few more details from the secondary literature and memoirs, but the heart of it was contained in a few special memorandums in General Groves's former office files.

The story began in the summer of 1944 as Groves was successfully driving the Manhattan Project toward its goal. With the production plants nearing completion, he could now devote more attention to the problem of fabricating uranium

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With the help of archivist Edward J. Reese (right), author Roger Anders was able to locate memorandums in the Groves office files that established that both FDR and Truman had approved the Trinity test.

7 August 1944

Subject: Atomic Fission Bombs - Present Status and Expected Progress.

To: The Chief of Staff.

I. GENERAL

1. This report is presented by Major General L. R. Groves in behalf of the Military Policy Committee. It has been approved by Dr. V. Bush, Director of O.S.R.D., Chairman, Dr. J. B. Conant, his alternate, and Rear Admiral W. R. Purnell, U.S.N. Major General W. D. Styar, U.S.A. left the country just before the report was prepared.

II. PREVIOUS REPORTS

1. The last report on uranium atomic fission bombs was made to the Chief of Staff, the Secretary of War, and the Vice President on 4 February 1944. The Secretary of War and Dr. Bush discussed the report with the President who read it in its entirety and approved the recommendations contained therein. These were:

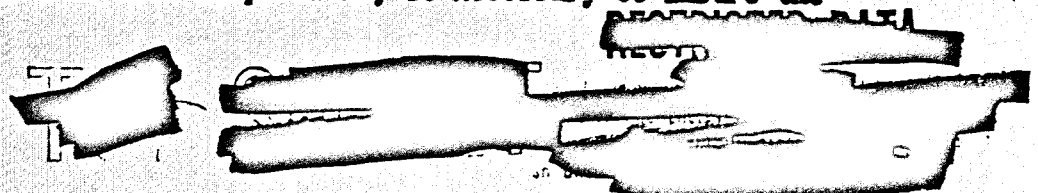
a. That this program continue to be carried forward vigorously and that it continue to be given the highest priorities and allocations on materials, equipment and personnel, with a view to accomplishing the desired end at the earliest possible date.

b. That the Belgian Government-in-Exile be strongly encouraged to insure the reopening of the Shinkolobwe Mine in the Belgian Congo.

c. That the highest authorities in the United States and the United Kingdom take such steps as may be necessary to insure the

CLASSIFIED AND CANCELLED WITH CHANGE
BY AUTHORITY OF A.A. Singshally, OC, DOE
BY *gsm/mob* DATE 7/24/58

The August 7, 1944, progress report that Groves showed to President Roosevelt on December 20.



PROLOGUE

235 and plutonium into workable bombs. For that task Groves had established a weapons laboratory at Los Alamos, New Mexico, under the direction of J. Robert Oppenheimer. Los Alamos scientists were working on two different methods of assembling a critical mass of uranium or plutonium. Once a critical mass was formed, then an atomic explosion would occur. To assemble a critical mass of uranium 235 they decided to blow a projectile of uranium 235 into a target of the same material, a conventional and proven explosives technique. Because certain properties of plutonium ruled out this technique, Los Alamos scientists turned to implosion, blowing a mass of plutonium in on itself, to form a critical mass. Implosion was a novel technique, and there were many problems that would have to be overcome in order to make it work. Scientists had to perfect it, however, for they could devise no other way to form a critical mass of plutonium.¹²

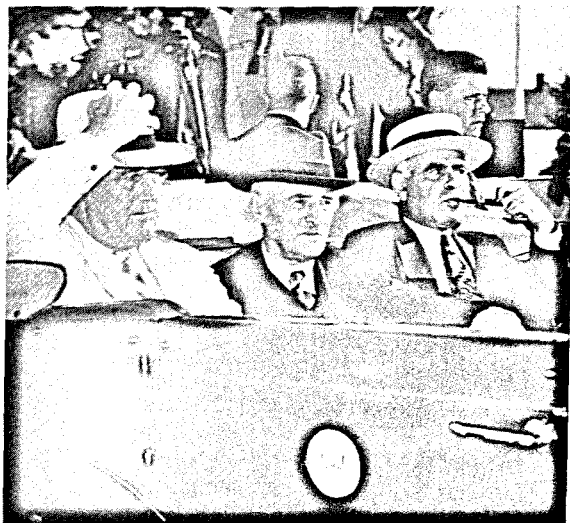
On August 7, 1944, as Los Alamos scientists were desperately trying to solve the problems of implosion, Groves prepared a formal progress report on the atomic bomb project for General Marshall. In it he discussed the problems of bomb fabrication, relating in some detail the gun and implosion methods and the problems associated with the development of each method. Groves saw little eventual difficulty in producing the gun weapon of uranium 235 and was optimistic that an implosion bomb could also be developed in time to be used in the war. He explained, however, that the problems of producing an implosion bomb were considerable and told Marshall that it would "probably be desirable to make a full scale test explosion of the bomb before

dropping the first one in combat." Although Groves believed that implosion would eventually produce a superior bomb, the "many departures from known practices" required a test before combat use. He anticipated that the first implosion bomb would be relatively inefficient.¹³

On December 30, 1944, with Allied successes on many battlefields bringing the war nearer to a close, Groves prepared another progress report. Roosevelt had not yet seen or acted upon his August report, although the Joint Chiefs of Staff had approved it. The lack of presidential attention, however, had not delayed progress toward an atomic bomb. Groves now based plans for combat use on the gun bomb, estimating that it would produce the equivalent of a ten-thousand-ton TNT explosion and that the first gun bomb would be ready in another eight months. The implosion method now seemed so inefficient that Groves estimated that it would produce an explosion equivalent to only five hundred tons of TNT or one half a kiloton. Groves did, however, expect its efficiency to increase in one-thousand-ton increments as more implosion bombs were built.¹⁴

Groves prepared the December report just as an urgent problem led Stimson to conclude that they both must see the president. It appeared that the United Kingdom had passed atomic energy information to France contrary to Anglo-American agreements for cooperation. Besides this problem, which got Stimson and Groves into the president's office, other pressing issues crowded his agenda. Although Roosevelt had recently emerged victorious from a fourth presidential campaign, which left him exhausted, he was now confronted with such complex problems as the future political structure of Eastern Europe, increasingly difficult relations with the Soviet Union, finding a means to bring the Soviet Union into the war with Japan, and the need to prop up a failing Chinese war effort.¹⁵ Atomic energy was only one of several problems demanding his attention.

On December 30, 1944, Stimson and Groves went to the White House to see Roosevelt and spent a little over thirty minutes with the president. Groves took both his August and his December reports. Stimson began with the French incident, although discussions eventually went on to ore reserves, recent evidence of Soviet atomic espionage, and finally to expectations about combat use of the bomb. In his memorandum of the meeting, Groves noted that Roosevelt "was shown" and approved his August report. On the bottom of his December report, Groves noted that both Stimson and Roosevelt



President Franklin Roosevelt, Sec. of War Henry L. Stimson, and war relief director Herbert Lehman.

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read and approved this report as well.¹⁶ In approving the August report, Roosevelt gave presidential imprimatur to the idea that, prior to combat use, a test of the implosion bomb would probably be conducted. Although it is unlikely that they even discussed the atomic bomb test, Roosevelt formally approved the Trinity test when he approved the report. For him it was a minor issue overshadowed by others of much greater importance. His approval, rather than being unambiguously recorded in one document, was captured on two documents: the August 7, 1944, formal progress report and Groves's memorandum record of the December 30, 1944, meeting and its marginalia.

Roosevelt did not review the issue again before his death on April 12, 1945. Because his successor, Harry S. Truman, knew virtually nothing about the Manhattan Project, Stimson and Groves had to return to the White House to explain the project to him. With Nazi Germany on the verge of surrender, issues about the political make-up of Eastern Europe and deteriorating relations with the Russians were even higher on Truman's agenda than they had been on Roosevelt's. The policy that America would adopt regarding the postwar control of atomic energy was intimately bound to relations with the Soviets, and Stimson focused primarily upon that issue as he prepared for the briefing.¹⁷

Stimson and Groves saw Truman on April 25, 1945, spending forty-five minutes with him. Stimson began with control of atomic energy information in the postwar world and discussed this issue alone with the president for the first ten to fifteen minutes of their appointment. Groves then joined them, and together the three conducted a more technical review of the project. The momentum that had built up behind the atomic bomb project over the last three years, however, left Truman with a far narrower range of options than had been open to Roosevelt. Indeed, Groves later characterized Truman's role as "one of noninterference," by which he meant

that the president should act only so as "not to upset existing plans."¹⁸

Groves had prepared a memorandum history of the atomic bomb project for the briefing. He repeated his prediction that a gun bomb would be ready for a test about August 1, 1945, and added that an implosion bomb would be ready for a test in early July. Now more optimistic about implosion, Groves hoped that an implosion bomb would be ready for combat by the latter part of August, though he still anticipated a relatively inefficient bomb and a small explosion.¹⁹

The president read one copy of the memorandum while Stimson and Groves followed along on the other. Truman interrupted from time to time with questions, and Groves later noted that the president showed much interest in foreign relations implications of the project but was not concerned about the amount of money spent on it. Truman approved Stimson's suggestion for taking a few members of Congress to one of the atomic energy plants. They also discussed steps taken to secure ore supplies at some length.²⁰

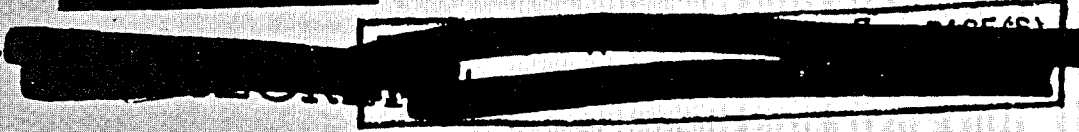
In addition, Truman seems to have focused directly on the Trinity test. Truman's later recollections in his *Memoirs* about the uncertainty of scientists about the size of the Trinity test shot seem to indicate that he spent at least a few minutes on it as they reviewed Groves's memorandum.²¹ The importance to the president of estimates about the size of the implosion bomb was obvious: the larger the bomb, the greater was its potential value as a diplomatic weapon. With preparations for the test well under way in New Mexico and a tentative test date already selected, the Trinity shot was a much more concrete issue for Truman than for Roosevelt. This probably also tended to cause him to focus more directly upon it. Yet Truman, too, doubtlessly saw it as a minor issue sandwiched among others of far more importance. He did not object to the test and gave Groves the decision of "non-interference" that he sought. By giving the test

After General Groves entered his memorandum to the Secretary of War dated April 23rd was read by the President and the President asked questions concerning various items. A great many of these questions were answered by the Secretary with little or no amplification by General Groves. The answers to the remainder of the questions were either considerably amplified by General Groves or were answered in their entirety by him.

The paragraph from Groves's April 25, 1944, memo to the file that recounts Groves's and Stimson's meeting with President Truman and the discussion of the atomic bomb.

CLASSIFICATION CHANGED
UNCLASSIFIED

December 30, 1944.



authenticity of:

TAC 71055

MEMORANDUM

Date 5/22/72 WRS

What occurred during a meeting at the White House between 12:30 p.m. and 1:00 p.m., above date, at which the following were present:

- The President
- The Secretary of War
- Major General L. R. Groves

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 E.O. 11652, Sec. 3(c) and 5(D) or (E)
 Authority 200396/5/79
 NARS, Date
 By ike
 WND

Originally the Secretary of War had intended to see the President alone but during a briefing in his office just before he left for the White House he expressed the desire to have me accompany him to the White House, although he stated that he did not feel that he could take me in with him as the appointment with the President was a personal one. However, on arrival at the White House, without prior warning, he told me to come in to the President's office with him.

My memorandum to the Chief of Staff dated 7 August 1944 was shown to the President and he expressed his approval.

The President showed great interest in the subject: we stayed far beyond the appointed time, despite strenuous efforts on the part of General Watson to get us out and the necessity of cancelling an appointment with the Secretary of State. The President further showed his interest, when the Secretary asked for time to discuss it further, by making an appointment for Sunday morning at noon when the Secretary will discuss it further. At that meeting the Secretary expects to have him read the complete story as prepared by Major F. J. Smith and signed by me to the Secretary. The Secretary stated that he didn't feel I would be necessary at that meeting.

L. R. Groves
 L. R. GROVES,
 Major General, USA.

After meeting with FDR on Dec. 30, Groves noted the president's interest in and approval of the atomic bomb project.

Groves's memorandum history of the atomic bomb project, which he showed to President Truman at his April 23, 1944, meeting at the White House.

TOP SECRET
[REDACTED]

23 April 1945

MEMORANDUM FOR THE SECRETARY OF WAR

ATOMIC FISSION BOMBS

I. PURPOSE OF DEVELOPMENT

The successful development of the Atomic Fission Bomb will provide the United States with a weapon of tremendous power which should be a decisive factor in winning the present war more quickly with a saving in American lives and treasure. If the United States continues to lead in the development of atomic energy weapons, its future will be much safer and the chances of preserving world peace greatly increased.

Each bomb is estimated to have the equivalent effect of from 5,000 to 20,000 tons of TNT now, and ultimately, possibly as much as 100,000 tons.

The entire program is known as the "Manhattan District Project" and at times as either the "DSM Project" or the "Tubealloy Project".

CLASSIFICATION CANCELLED with decision
BY memo DATE 7/26/88
BY AUTHORITY OF A. A. Sanigalli OC, DOE

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TOP SECRET
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REPRODUCED AT THE NATIONAL ARCHIVES

PROLOGUE

his implicit approval, he can be said to have approved the Trinity test as well.

Truman's approval of the test, like Roosevelt's, must also be gleaned from a combination of documents: Groves's memorandum history, Stimson's diary, Groves's memorandum of the meeting, and Truman's *Memoirs*. Like Roosevelt's, it did not appear in a single, unambiguous document. Unlike Roosevelt's, it required the linking of primary sources and memoirs. Ironically, although Truman's approval of the Trinity test is less clear in the documents than Roosevelt's, it was in reality more direct. Because Truman knew little about the atomic bomb project, tended to ask direct questions, sought direct advice, needed ammunition for the forthcoming diplomatic tilts with the Soviets, and examined Project Trinity much closer to the scheduled test date, it is almost inconceivable that he did not discuss it in some detail with Stimson and Groves.

By not reflecting this, the existing documentation is somewhat misleading.

Without the records of the Groves office files in the National Archives, the search for the presidential approval of the Trinity test would have been fruitless. The circumstances under which presidential approval was given and the nature of that approval would have been impossible to determine. Ultimately it was the documentation created by Groves that provided the key proof that two presidents approved the Trinity test. The ambiguity of this documentation, however, demonstrates that even urgent, highly secret government projects need mechanisms for completely recording top-level decisions. Had the Manhattan Project contained a secretariat that carefully documented presidential decisions in 1945, the uncertainty about presidential approval of the Trinity test would never have existed. □



President Truman congratulates retiring Sec. of War Henry Stimson after awarding him the Distinguished Service Medal on September 21, 1945, as Mrs. Stimson looks on.

NOTES

Roger M. Anders is a historian at the Department of Energy. He wishes to thank the department's Chief Historian Jack M. Holl and colleagues in the History Division, Alice L. Buck, Terrence R. Fehner, Francis G. Gosling, and Sheila C. Convis, who generously read and commented on drafts of this article. The views expressed in this article are those of the author and not those of the Department of Energy.

¹House Committee on Armed Services, *Impact of Repeal of Section 1631 of Public Law 98-525*, 100th Cong., 1st Sess., July 30, 1987 (1988), pp. 30-31.

²For example, see Lansing Lamont, *Day of Trinity* (1965); Vincent C. Jones, *Manhattan: The Army and the Atomic Bomb* (1985), pp. 478-481, 511-518; Richard G. Hewlett and Oscar E. Anderson, Jr., *The New World, 1939-1946*, vol. I of *A History of the United States Atomic Energy Commission* (1962), pp. 318-319, 375-380; Leslie R. Groves, *Now It Can Be Told: The Story of the Manhattan Project* (1962), pp. 288-304; Kenneth D. Nichols, *The Road to Trinity* (1987), pp. 191-198.

³Hewlett and Anderson, *The New World*, pp. 379-380, 386-387; Jones, *Manhattan*, pp. 518-519.

⁴Jones, *Manhattan*, p. 39.

⁵Richard G. Hewlett, "Beginnings of Development in Nuclear Technology," *Technology and Culture* 17(July 1976): 469.

⁶Jones, *Manhattan*, pp. 73-74, 77, 89-90; Hewlett and Anderson, *The New World*, pp. 45-46, 82-83.

⁷Hewlett, "Beginnings of Nuclear Technology," p. 469.

⁸Nichols, *Road to Trinity*, pp. 59-60; Groves, *Now It Can Be Told*, pp. xi-xiii. The quotation is from Nichols, p. 60.

⁹The Groves office files are in Records of the Manhattan Engineer District, 1942-1948, Records of the Office of the Chief of Engineers, Record Group 77, National Archives and Records Administration, Washington, DC (hereafter cited as MED, RG 77, NA).

¹⁰Groves, *Now It Can Be Told*, p. 28; Nichols, *Road to Trinity*, pp. 106-107.

¹¹Martin J. Sherwin, *A World Destroyed: The Atomic Bomb and the Grand Alliance* (1973), pp. 293-294, 308-314.

¹²Hewlett and Anderson, *The New World*, pp. 245-252, 310-313.

¹³L. R. Groves to G. C. Marshall, Aug. 7, 1944, File No. 25, tab K, MED, RG 77, NA.

¹⁴Groves to Marshall, Dec. 30, 1944, File No. 25, tab H, MED, RG 77, NA. The report was also published in *Foreign Relations of the United States: The Conferences at Malta and Yalta, 1945* (1955), pp. 383-384.

¹⁵Hewlett and Anderson, *The New World*, pp. 331-335; James MacGregor Burns, *Roosevelt: The Soldier of Freedom* (1970), pp. 521-544.

¹⁶Groves, Memorandum of Meeting at the White House, Dec. 30, 1944, File No. 24, tab C; Groves to Marshall, Aug. 7, 1944, File No. 25, tab K, both in MED, RG 77, NA; Hewlett and Anderson, *The New World*, pp. 333-334. The quotation is from Groves's December 30 memorandum. Hewlett and Anderson, on page 690, argue that Groves did not show Roosevelt the August report because it was five months old. Yet in the December 30 memorandum, Groves directly states that Roosevelt approved the August 7 report at the meeting. In 1959 Groves reviewed the December 30 memorandum and noted in the margin that the statement that the August report was the one that was approved was correct. Because Groves unambiguously noted on his December 30 report that Stimson and Roosevelt both approved it on December 30, 1944, it seems clear that Roosevelt saw and approved both reports, although he did not spend much time on either.

¹⁷Hewlett and Anderson, *The New World*, pp. 335-340; Diary of Henry L. Stimson, Mar. 15, Apr. 23-25, 1945, Henry L. Stimson Collection, Sterling Memorial Library, Yale University, New Haven, CT; Robert J. Donovan, *Conflict and Crisis: The Presidency of Harry S. Truman, 1945-1948* (1977), pp. 9-13.

¹⁸Hewlett and Anderson, *The New World*, pp. 342-343; Stimson diary, Apr. 25, 1945; Henry L. Stimson and McGeorge Bundy, *On Active Service in Peace and War* (1947), pp. 634-637; Groves, *Now It Can Be Told*, p. 265. The quotation is from Groves.

¹⁹Groves to Stimson, Apr. 23, 1945, File No. 25, tab M, MED, RG 77, NA.

²⁰Stimson diary, Apr. 25, 1945; Groves, Memorandum to Files, Apr. 25, 1945, File No. 24, tab D, MED, RG 77, NA. Groves's memorandum of the meeting is reprinted in Sherwin, *A World Destroyed*, pp. 293-294.

²¹Harry S. Truman, *Memoirs by Harry S. Truman*, vol. 1, *Year of Decisions* (1955), p. 415.