

ATOMIC SCIENCE AND SOCIAL RESPONSIBILITY

BY

MICHAEL E. TIGAR
1961

"You have to have a free and uncorrupted communication. And this is so the heart of living in a complicated technological world--it is so the heart of freedom, that that is why we are all the time saying, "Does this really have to be secret?" "Couldn't you say more about that?" "Are we really acting in a wise way?" Not because we enjoy chattering, not because we are not aware of the dangers of the world we live in, but because these dangers cannot be met in any other way."

Dr. J. Robert Oppenheimer

The people is a tragic and comic two-face:
hero and hoodlum: phantom and gorilla twist-
ing to moan with a gargoyle mouth: "They
buy me and sell me . . . it's a game . . .
sometime I'll break loose . . . "

Carl Sandburg

TABLE OF CONTENTS

I. Introduction--Sovereignty and Atomic Energy . . .	1
II. The Making of the Bomb	5
III. No More Hiroshima	16
IV. Whose Atom?	27
V. The Russians Can Go To Hell	34
VI. "Let Me Tell You A Story About Old Man Atom . ."	38
VII. ". . . no limits exist to the destructiveness of this weapon."	46
VIII. The Half-life of Democracy	59
Notes and Bibliography	72

* * *

This paper was written in the Spring semester of 1961,
under the direction of Professor Richard Drinnon of the
History Department of the University of California.

I. Introduction--Sovereignty and Atomic Energy.

The question "who rules?" is basic to an understanding of the government of any society, but it is often avoided or slighted in studies of history or political theory. Usually, the substantive character of the decision is stressed, rather than the competence of the maker of the decision to do as he did. That is, we often ignore the question of how the leader or sovereign came to his authority, and the means by which he maintains his power.

Excitement over what the decision is induces in men forgetfulness of their most cherished convictions as to who is competent to take it.¹

Also, our concern with the substantive character of decision may blind us to the realities of power in modern society. We forget to ask "to whom is our leader responsible?" We neglect, in short, to take into account the origin, support, and interest of state power.

A little reflection brings to mind examples of new theories of competence rising up to meet the needs of new situations. The rise to economic power of a class of independent entrepreneurs found legitimacy in a doctrine of 'natural right,' a doctrine which attacked the legal foundations of feudalism. Thorstein Veblen writes:

The scheme of natural rights grew up and found secure lodgement in the common sense of the community, as well as with the lawgivers and the courts, under the discipline of small industry and petty trade ("domestic in-

dustry") whose development culminated in the eighteenth century.²

Other writers after Veblen, such as Thurman Arnold, have had occasion to reinforce Veblen's thesis that 'natural right' words and concepts are being used in grotesque distortions of their original meanings to describe the relationship of man to man long after such words and concepts have ceased to have any real relevance to actual circumstance. Such use, of course, contributes to the notion that while societies have risen and fallen in past ages, modern American/^{capitalist} society is unique in its durability. Alternatively, that while formerly there was history, today there is none.

But it was not only at the birth of capitalism that a search for new principles of state power was needed. The growth of the modern military force, and of complex decisions of state defined in terms of military realities have led to new formulations in bourgeois democracies of the West to justify the taking of these decisions out of the realm of public debate,³ in apparent contravention of the natural right principles of democracy.

Certainly, the explosion of the first atomic bomb over Hiroshima raised sharply the question of who was to control the new force, and the purpose to which it was to be harnessed. The advent of the hydrogen bomb put the question more forcefully--and with an element of the poignant and the urgent--who was to have control, not merely of the means of military force, but of the means of obliteration? How could the monopoly

of this control by a small group of men in society be reconciled with the image of a democratic society as one in which the leaders "suggest, advise, propose, advocate" while the community "debates, selects, consents, and makes final a given course of action."⁴ If the answer is that the fact could not be reconciled with the image, one must ask the reasons for the discrepancy.

There was, though, a need more immediate than the need to make control of the bomb acceptable in terms of some metaphysical notion of popular sovereignty. The bomb was a new factor in the environment which threatened the extinction of the species.⁵

In the Darwinian view, animals lower than man respond to new situations by instinctive processes, such as migration. This failing, the principle of natural selection leads to the gradual emergence of a new form, better suited to the new environment. Man, however, is unique. He is able to control his environment, to make decisions about the manner of his survival upon full reflection and with rationality.

The problem with the new factor in the environment, the Bomb, was to understand it, to comprehend its relationship to science, the military, and the exigencies of American foreign policy in the post-war years. But the secret of the Bomb was well-kept during the war, and there were really only two groups in society in 1945 who could be said to comprehend the meaning of the bomb. These were:

1. The military and foreign affairs strategists.
2. The scientists who had been actively involved in the production of the bomb.

The military-State Department/^{group}included Truman's advisors, General Leslie Groves(wartime chief of the Los Alamos project), Forrestal, Senator Vandenberg, and a few others. The military was able to comprehend the significance of the bomb by placing it in the context of military policy, by denying that it was anything more than another instrument of military power. The military view was that the USSR was the real enemy and had been all along. This aided them in viewing the bomb as but one more asset in the post-WW II struggle with the Soviet Union.⁶

The scientists, if we count all those who knew the scientific significance of the bomb, were many. Those who also realized the need for new political forms to cope with it were few, and were joined by members of the intellectual community. Foremost among the scientists was Dr. J. Robert Oppenheimer, who had been scientific director at Los Alamos. To the scientists, the primary question was not American hegemony in the post-war world (which, as will be shown, was the goal of the military) but rather a world "fixed up for peace," a world in which scientists of two countries could talk to each other, and to their respective polities, about the problems and questions of policy toward science.

Thus the dichotomy: The bomb does not change the situation and can be integrated into the old strategic concepts

5

and into a policy of military superiority; on the other hand, the view that the bomb makes old plans of war and statecraft, perhaps war itself, obsolete.⁷

For the scientist, the question was crucial. The decision was a decision as to whether he would be an instrument of a policy of war, or the co-builder and enricher of a policy of peace.

The attitudes, actions, and reactions of the two groups mentioned form a principal element of this study. But these two groups were not the sole elements involved, carrying on their dialogue over the heads of a powerless mass. We must also consider public reaction to a series of incidents which future anthropologists and historians may judge as crucial on two levels--the level of social structure, and the level of survival of the species.⁸

II. The Making of the Bomb.

The political decision to make the atomic bomb was taken under circumstances not yet fully revealed. The scientific chronology is more clear. On ⁶January 1939, Doctors Otto Hahn and Fritz Strassman reported in a German scientific publication that they had noted the presence of radioactive barium as a result of bombarding U-235 (an isotope of the element uranium) with neutrons. They had discovered this in company with Dr. Lise Meitner in the Autumn of 1938 at the Kaiser Wilhelm Institute in Berlin. Dr. Meitner, a non-Aryan, left Germany for Copenhagen shortly after the discovery. There

Chron

6

was no evidence in the German article that Hahn and Strassman could explain the reasons for the presence of barium. In Copenhagen, Dr. Meitner met another exile from Germany, Dr. O. R. Frisch, who was working in Neils Bohr's laboratory. The three decided that the presence of barium after bombarding uranium could result plausibly only from the fission, or splitting, of the uranium nuclei. Bohr left Copenhagen for America to convey this information and discuss the matter with other scientists. He received while ~~harrea~~ telegram from Drs. Meitner and Frisch confirming uranium fission.⁹

Bohr met with scientists at Princeton, some of whom had already begun to work with uranium (including Fermi, recently arrived from Italy). These scientists enlisted the aid of Albert Einstein, who drafted a letter to President Roosevelt, urging government support of fission research.

²
On/August 1939, Alexander Sachs of New York read the Einstein letter to President Franklin Roosevelt at the White House:

Some recent work by E. Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into a new and important source of energy in the immediate future.¹⁰
The letter went on to advocate Presidential action, to describe the fission process, and detail possible uranium sources. It continued:

I understand that Germany has actually stopped the sale of uranium from the Czechoslovakian mines which she has

~~has~~ taken over. That she should have taken such early action might perhaps be understood on the ground that the son of the German Under-Secretary of State, von Weizsaecken, is attached to the Kaiser Wilhelm ^{Institute} in Berlin, where some of the American work on uranium is now being repeated.

Roosevelt was amenable, and he "appointed a special committee, with Dr. Briggs of the Bureau of Standards as Chairman, to study the possible relationship to national defense of recent discoveries in the field of atomistics, notably the fission of uranium."¹¹ (Other members were Lt. Colonel Keith F. Adamson, Army Ordnance Corps, and Commander Gilbert C. Hoover, Navy Bureau of Ordnance.) This Committee reported on 11 November 1939 with a recommendation for government support of bomb research.¹²

On 15 June 1940, President Roosevelt set up the National Defense Research Committee, with Dr. Vannevar Bush, President of the Carnegie Institute, as Chairman.¹³ This Committee was the one to which the Briggs Committee--and others dealing with various special weapons projects--was to report. Dr. Bush and President Roosevelt set up the NDRC to provide a body which could mobilize scientists for war work.¹⁴

This Committee was superseded by the Office of Scientific Research and Development in June of 1941. Dr. Bush was named head of the new agency, and continued in this post until the end of the war.¹⁵

Up to the middle of 1942, however, expenditures by the Federal Government on atomic research for weapons applications

8

probably amounted to less than \$3,000,000.¹⁶

¹⁶
On August 1942, the Manhattan District of the Army Corps of Engineers was created. The nature of its work was a secret, but it had a drawing account which the Congress kept filled to a level of \$600,000,000. On 17 September 1942, General Leslie R. Groves was appointed to head the district.¹⁷

Shortly after General Groves was appointed, he chose Dr. J. Robert Oppenheimer as chief scientific advisor for the bomb project and director of the work at Los Alamos. Dr. Oppenheimer had, prior to this time, been working on certain theoretical problems connected with the explosive properties of the fission weapon.¹⁸

Why Oppenheimer? The opinions of those who have spoken of the Los Alamos project are near unanimous in the view that Dr. Oppenheimer filled two important criteria. He had the recognition of the scientific community as the pre-eminent physicist in the country; and two, he was a leader. Dr. Hans Bethe, head of the Theoretical Division at Los Alamos during the Second World War, has testified:

It was a very hard task to create this laboratory. Most scientists were already involved in war work very deeply, and it required somebody of great enthusiasm to persuade them to leave their jobs and join the new enterprise of Los Alamos.... I believe that Oppenheimer had absolutely unique qualifications for this job and that the success is due mostly to him and to his leadership in the project. . . . We needed a unifying force and this unific-

ation could only be done by a man who really understood everything and was recognized by everybody as a superior in knowledge and judgement to all of us. That was our director.¹⁹

In early 1943, Dr. Oppenheimer received a letter (signed by General Groves and James B. Conant) appointing him head of Los Alamos.²⁰ In April 1943 Dr. Oppenheimer called a meeting of those whom he hoped to recruit for Los Alamos. The technical aspects of the bomb and the directive to build it were discussed.²¹ "In order to bring the responsible scientists to Los Alamos," Oppenheimer said later, "I had to rely on their sense of ^{the} interest, urgency, and feasibility, of the Los Alamos mission. I had to tell them enough of what the job was, and give strong assurance that it might be successfully accomplished in time to affect the ^{outcome} ~~result~~ of the war, to make it clear that they were justified in leaving other work to come to this job."²²

He added, "The isolated site of Los Alamos was selected . . . because it enabled those responsible to balance the obvious need for security with the equally important need of free communication among those engaged in the work."²³

Thus the early history. Why did the scientists, many of whom today fervently express the need for disarmament, and most of whom were opposed to the use of the bomb on Japan, make this weapon, the first step in the arms race?

There seems to be little doubt that, in part at least, the ease of recruiting scientists to work on the project was

linked to a fear of fascism. Fermi had fled Italy in 1939. Bohr had received many German refugees in his Copenhagen laboratory. Bethe and Einstein had left Germany, fearful of repression. Oppenheimer, not to put too fine a point on it, was anti-fascist. These sentiments were coupled with the undeniable probability that the Germans must certainly have verified fission after a time. Quite early in the game the scientists, themselves, under the leadership of Szilard and Fermi, "joined . . . in a voluntary censorship to keep certain secrets that could lead in the direction of the bomb."²⁴

Einstein's letter pointed out ~~that~~ the German work on nuclear fission. According to Oppenheimer, "We had information in those days of German activity in the field of nuclear fission. We were aware of what it might mean if they beat us to the draw in the development of atomic bombs. The consensus of all our opinions, and every directive that I had, stressed the extreme urgency of our work, as well as the need for guarding all knowledge of it from our enemies. . . ."²⁵

If the chance that the Germans could make the bomb was of the proportion indicated by information made available to the scientists, their fears were well grounded. It becomes important to look at the German position; it becomes relevant to ask whether the officially-expressed "urgency" in the matter of the making of the bomb was diminished as Germany's chances of making a bomb became more remote.

On 2 December 1942, in the squash court at the University of Chicago, Enrico Fermi staged the first controlled and sustained chain reaction, establishing not only that the chain

11

reaction was possible, but that production of plutonium on a continuous basis was feasible. By that time it was known that it was possible to use either graphite or heavy water as a moderator in nuclear reactors designed for plutonium production.²⁶ Thus, one indication of large scale nuclear reactor work was the use of heavy water.²⁷

It was a matter for concern when it was learned that the Germans were placing extensive orders for heavy water at the Norsk Hydro plant at Vemork (in occupied Norway). A group of Norwegians were parachuted into Norway near Vemork and dynamited the Norsk plant on 28 February 1943. Destroyed were 3000 pounds of heavy water and the plant's major machinery.²⁸

On 16 November 1943 the Vemork plant was bombed by Allied Forces, and the Germans decided that the heavy water production would be transferred to Hamburg by ferry. On Sunday, 20 February 1944, the ferry Hydro, on which the heavy water containers had been placed for shipment, was blown up by the Norwegian underground.²⁹ The European Theatre of the Positive Intelligence Group reported to the War Department that there was no chance that the Germans could make a bomb. This report, made in December 1944, merely confirmed what anyone with half an access to intelligence could long have surmised.³⁰ We knew for certain in December 1944, then, what we surely could have guessed in June of 1943. The Germans would not have a bomb for World War II. This is of course speculative, but there is substantive evidence that seriously undermines the contention implicit in the "urgency" argument, in the worries about Germany, and the general prevalence of anti-fascist

arguments used as a means to get scientists for the project. The testimony of General Leslie R. Groves is illuminating:³¹

I think it is important to state-- I think it is well known--that there was never from about 2 weeks from the time I took charge of this project any illusion on my part but that Russia was our enemy and the project was conducted on that basis. I didn't go along with the attitude of the of the country as a whole that Russia was a gallant ally.³¹

This attitude was not uniquely General Groves'; it permeated the entire project. The criteria for security clearance were loyalty and discretion. Disloyalty and lack of discretion included membership in left-wing organizations. Events later in the war, which we shall discuss presently, do not indicate that this was a mere hangover from the anti-bolshevism of the 1930's, recurring occasionally like some damping harmonic wave. The alliance with the USSR had no noticeable effect on the ardor of the professional anti-Communists. On 2 September 1943, Captain Peer de Silva, a security officer for the Los Alamos project, reported that he felt Dr. J. Robert Oppenheimer to be a part of a Soviet espionage effort.³² It is clear, too, that Dr. Oppenheimer was hired in spite of his "associations and relatives."³³ The security officers reported negatively on Dr. Oppenheimer, but General Groves insisted that he be cleared because he was "irreplaceable."³⁴

By the end of 1944, then, the situation was clear:

1. The Germans could not make the bomb;
2. The USSR was an enemy, and they were to receive no

information about the bomb--indeed, every effort was to be made to conceal from them even the fact that we were engaged in making the new weapon.³⁵

Although co-operation with the British was to be a part of our official program, General Groves "did not carry out the wishes of our government with ^{respect} ~~regard~~ to the British."³⁶

The war against Hitler, it was clear, was in the minds of some, not the central problem. It is still argued by some commentators that we should not have destroyed Germany, Japan, and Italy, for they were the forces containing Communism in Europe and Asia.

Our policy, upon entrance into the war, was to hold Japan in the South Pacific, and destroy Hitler as soon as possible, demolishing the Afrika Korps and taking Italy, opening the Mediterranean and gaining control of the sea there. A Second Front was to be established in Europe, to ease the strain on the Russian frontier, and destruction of V-1 and V2 launching sites carried out. With defeat of Germany assured, we would proceed to finish up operations in the Pacific, with Soviet aid if that became necessary.³⁷ Stalin complained during the course of the war in Europe that he was the victim of a "bleed white" policy on the part of the Western Allies. He criticized the delay in setting up a Second Front.

If "Russia was our enemy," why did we enter the war at her side? Paul Sweezy gives a clue when he speaks of three Second World Wars:

The Second World War as a whole, however, is not,

like the first, a simple inter-imperialist struggle for redivision of the world. It is in reality three distinct wars which are merged together only in a military sense and even in this respect not completely. The first of these wars is a war of redivision on the 1914-1918 pattern with Germany, Italy, and Japan on one side and Great Britain and the United States on the other side. The second is a war between capitalism and socialism, with Germany on one side and the Soviet Union on the other; the third is an anti-imperialist war of national independence waged by China against Japan.³⁸

This is not the place to debate Doctor Sweezy's thesis extensively. The German dual intention: to destroy bolshevism and to gain world markets, would seem to indicate some validity for the Sweezy thesis. The ~~anti-imperialist~~ Nazi-Soviet pact, of which much has been made, did accomplish one thing for sure. It effectively prevented the Western Allies from joining with Germany in a war to make the world safe for capitalism. Also, the fact that atomic information was made available to all our allies except the USSR should be considered.

Other factors more indigénously American bear pointing out. In 1938, net national product dropped 5.6 billion dollars, or 6.7%, from 1937, and unemployment rose 4.7% to 19% of the total labor force (sort of a depression in the recession in the depression).³⁹ This seems to indicate that the redistribution of income efforts of the New Deal were not sufficient to stimulate production, and that there was still a lack of effective

demand. Two good remedies would have been to expand our export of goods and capital to world markets, and to increase public expenditures. Military assistance and preparation for war accomplish both these ends, and this must be taken into account.

"Russia was our enemy...." When war is over, its results are not gauged solely in terms of winner or loser. Rather, it is more sensible to look at the destruction of the political, economic, and social structures in each of the warring countries. By this standard, the United States emerged as the victor in World War II, and its victory was total. Our entry into World War I had given us a place at the bargaining table and made us a creditor nation. We emerged from World War II as the undisputed leader of the capitalist or "free" world. Our aim to be the strongest, in military might, in economic power, was fulfilled by the war.⁴⁰ "So we are going to win the war," said Franklin Roosevelt, "and what is more important, we are going to win the peace that follows."

But what ever happened to the defeat of fascism, which was our reason for entering the conflict, which was our supposed reason for needing an atomic bomb; and which was certainly the basis on which some of the humanitarian scientists joined the project. As John McCloy has said:

There were names like Fermi and Wigner, Rabi and another queer name, Szilard, or something like that--but I have the impression they came over here, and probably imbued

with a certain anti-Nazi fervor which tended to stimulate thinking, and it is that type of mind that we certainly needed then.⁴¹

The scientists at Los Alamos appear not to have been told of the fact that Germany would not have the bomb. The decision to use the bomb was, for them, a lesson in power politics.

III. No More Hiroshima

Germany surrendered on 8 May 1945. Hiroshima was bombed 6 August and Nagasaki 8 August 1945. The prologue to this use of the fission weapon is unclear. Once Germany was defeated, the question was the final defeat of Japan. Air power advocates saw the matter in terms of a strategy of heavy bombing attacks. Naval strategists thought that a blockade would shortly bring Japan to her knees. The Army and Marine Corps doctrine called for invasion, with capture of Tokyo by 1 March 1946.⁴²

The actual course of military events after the defeat of Germany is common knowledge. The bomb was dropped, on a high-density civilian area. An official version of the sequence is given by E. B. Potter of Annapolis:

Neither the rulers not the people would accept a peace that did not preserve the imperial system. Negotiations therefore had to be carried out in secret and terms short of "unconditional surrender" had to be obtained. Since of the major powers only Russia was even ostensibly neutral with respect to the Pacific War, it was appropriate that peace feelers be extended through Mos-

cow But when the Japanese ambassador at Moscow approached the Russian foreign office on the subject of terms he was informed that no official action could be taken at that time because Premier Stalin and Foreign Minister Molotov were about to depart for Potsdam to confer with the other victors over Germany.

On July 26 however, the government of the United States, Britain and China made it clear [sic] with the Potsdam Proclamation that for Japan "unconditional surrender" was to apply only to the armed forces. . . . Nothing was said about the Emperor or the imperial system because the Allied governments had not yet made up their minds on that point.⁴³

Potter goes on to say that the Japanese Premier released the text of the Potsdam Proclamation to Japanese newspapers, with the explanation that the Emperor was withholding comment. An error in translating his message, says Potter, led to an American belief that he had summarily rejected the terms. "The U.S., reacted militarily to the supposed rejection," Potter goes on. "On August 6, a B-29 from the Marianas [Tinian] dropped an atomic bomb . . . [on] Hiroshima."

It seems clear that this act, the dropping of the bombs, was to close a series of events which led to the anti-war militancy of the atomic scientists at the close of the war. "The scientists have known sin," said Oppenheimer. The power of the bomb was enormous; the callousness and insensibility of the bomb's use dwarfed the enormity of its power.

This point is far from self-evident, and a discussion of it provides a context for viewing the post-war role of the scientists.

At Yalta it had been agreed that the USSR would enter the war against Japan within three months after the surrender of Germany. V-E Day was 8 May 1945. The schedule then called for a declaration of war by Stalin by 8 August. This did indeed take place, and the Red Army had rolled through Manchuria by war's end.

The late Henry Stimson (Secretary of War, 1945) argues that the decision to use the bomb was based on the desire to save American lives, to shorten the war and minimize destruction of Japan.⁴⁴ He feared, he says, that attempts to reduce Japan to surrender by conventional means would have produced "race solidarity and fusion."

An Internal Committee recommended to President Truman that the bomb be used. Their recommendation was trifold:

1. that the bomb be used against Japan as soon as possible;
2. a dual target be chosen-- military and civilian;
3. that no prior warning be given as to the nature of the weapon.⁴⁵

But Mr. Stimson's arguments do not convince one of the need to use the bomb. We had demolished Japan by June 1945. B-29's, sometimes five hundred at once, had burned out great areas of Japan with napalm bombs. The naval blockade was effective; hunger was rife; production was at a standstill. The USSR had refused in April to renew its Neutrality Pact with Japan, thus adding one more potential enemy. Okinawa

fell on 22 June 1945. On that date Emperor Hirohito is reported to have said to the Supreme War Council that Japan must find a way to end the war.⁴⁵ Why, then, did we drop the bomb?

To save American lives? Not so, for it would have taken but few ships to keep a blockade on Japan. To shorten the war? Perhaps, but surely only by a couple of months at the outside. Why were those two months so vital? Or, if they were not vital, why did we use the bomb?

There are several theories. The first is the "Roman Holiday" theory, which holds that we had spent two billion dollars on the bomb, which is quite a large sum for a single weapons system (three bombs). This effort would have been wasted, and we would have never had an opportunity to see how the bombs worked on people and real buildings. "The wit of man could hardly devise a theory of the dropping of the bomb both more insulting to the American people and providing greater justification for an energetically pursued Soviet defense policy."⁴⁸

The second theory is the "tactless" theory, which would admit that the bombing was not necessary in the light of history; but adds that we had elaborate plans to drop it and did so and it was in rather poor taste to have done so, especially since we did not consult the USSR. If "tactlessness" is all one can see in the unnecessary incineration of the humans at Hiroshima, then it is a waste of time to discuss the matter. As Paul Baran has said, "A meaningful discussion of human affairs can only be conducted with humans; one wastes one's

time talking to beasts about matters related to people."

Third, there is the "cold war" theory, which holds that the dropping of the bomb on Japan served to affirm the military strength of the United States vis-a-vis the USSR, and to keep the Far East and Japan free from Soviet influence by forestalling the entry of Soviet troops. By this theory, Hiroshima and Nagasaki were not the last moves in the struggle with Japan for the markets of Southeast Asia, but signified the re-entry of the United States into a cold war conflict with the USSR and with socialism. This position seems to be the only one which makes any sense out of American actions.

When P. M. S. Blackett's book, The Military and Political Consequences of Atomic Energy, appeared with the "cold war" thesis in it, a Los Alamos physicist, reviewing the book, gave this account of the events of mid-1945: "While the matter is complex, he [Blackett] is cogent. I can testify personally that a date near August 10th was a mysterious final date which we, who had the daily technical job of reading the bomb, had to meet at whatever cost in risk or money or good development policy."⁴⁹

These observations by Dr. Philip Morrison are seconded by much evidence in the transcript from the Oppenheimer Personnel Security Board Hearing.

We did not need to drop the bomb to win, but drop it we did. We did not need the two months (this is the limit of the time saved), unless we wanted to insure that the USSR did not take any part of Japan, or participate in a blockade to starve her out.

Recall too that President Truman was far more anti-Soviet than President Roosevelt. Evidences of the abrupt change in attitude toward the USSR as the Truman administration took over are not difficult to find. One indication was Mr. Truman's treatment of Foreign Minister Molotov, sent to the United States as a gesture of friendship to indicate Soviet wishes to continue on a co-operative basis with the United States despite the death of Roosevelt.⁵⁰ Molotov met with Truman in Washington prior to going to San Francisco where the United Nations meetings were being held.

No one is sure whether the meeting with Truman just terminated or whether Molotov walked out. Byrnes said that "it was not a very harmonious meeting and ended rather abruptly."⁵¹ Molotov said at the time, "No one has ever talked to me like that before."⁵² Truman's charge was that the USSR had violated the Yalta agreement on Poland.~~XXXX~~ Senator Arthur Vandenberg, hearing of the meeting, wrote, "This is the best news in months. F.D.R.'s appeasement of Russia is over."⁵³

Shortly after Roosevelt's death, Truman gave orders to halt lend-lease shipments to the USSR. His bitter criticism of Henry Wallace's "internationalist outlook" are indicative. A post-war entry in Truman's diary (probably about Wallace-- at least Wallace was sure it was) reads:

X is a pacifist 100 per cent. He wants to disband our armed forces, give Russia our atomic secrets, and trust a bunch of adventurers in the Kremlin Politbureau. . . . The Reds, phonies and the 'parlor pinks' seem to be banded together and are becoming a national danger.⁵⁴

The dropping of the bomb fulfilled any anti-Soviet plans we may have had, while realizing no anti-Japanese plans. We surprised the Soviets--they did not know about the bomb or its power. We kept them out of Japan. We served notice that, despite the war, we were the strongest national power in the world.

Where were the scientists when it was decided that we ought to use the bomb? Some acted to halt the bomb's use. Some said nothing. Dr. Oppenheimer, among others, said that it should be dropped. The Interim Committee which recommended to President Truman that the bomb be used was advised by a Scientific Panel, of which Dr. Oppenheimer was a member. The Panel underscored the disagreement among scientists as to the best use of the bomb.

The opinions of our scientific colleagues on the initial use of these weapons are not unanimous; they range from the proposal of a purely technical demonstration to that of the military application/^{best}designed to induce surrender. Those who advocate a purely technical demonstration would wish to outlaw the use of atomic weapons, and have feared that if we use the weapons now our position in future negotiations will be prejudiced. Others emphasize the opportunity to saving American lives by immediate military use, and believe that such use will improve the international prospects, in that they are more concerned with the prevention of war than with the elimination of this special weapon. We find ourselves close to these latter views; we can propose no technical demon-

stration likely to bring an end to the war; we see no acceptable alternative to direct military use.

With regard to these more general aspects of the use of atomic energy, it is clear that we, as scientific men, have no proprietary rights. It is true that we are among the few citizens who have had occasion to give thoughtful consideration to these problems during the past few years. We have, however, no claim to special competence in solving the political, social, and military problems which are presented by the advent of atomic power.⁵⁵

Others were of different persuasion. Leo Szilard reflected that:

. . . during 1943 and part of 1944, our greatest worry was the possibility that Germany would perfect an atomic bomb before the invasion of Europe. . . . In 1945, when we ceased worrying about what the Germans might do to us, we began to worry about what the government of the United States might do to other countries.⁵⁶

Szilard sent a letter to President Roosevelt shortly before the latter's death, pointing out that if we detonated the bomb, the USSR would rapidly begin to work on it, too.⁵⁷

The most well-known anti-detonation brief was signed by a group of scientists at the University of Chicago Metallurgical Laboratory--the Franck Report of June 11, 1945, "to warn against the use of the atomic bomb against Japan."⁵⁸

The scientists who met to advise the Interim Committee knew of the strong sentiment at Chicago against dropping the

bomb, but they did not see the Franck Report with its eloquent arguments and reasoned approach to the question. The Report was sent to Secretary Stimson on June 11, in an attempt to counter the opinions of the scientists on the Interim Committee and its scientific panel.⁵⁹ A portion of the report reads:

It would be foolish to hope to retain our lead in nucleonics by secrecy. . . . The military advantages and the saving of American lives achieved by the sudden atomic use of the bomb against Japan may be outweighed by the loss of confidence and by a wave of horror sweeping over the rest of the world, and perhaps even dividing public opinion at home.

From this point of view, a demonstration of the new weapon might be made, before the eyes of representatives of all the United Nations, on the desert or a barren island. The best possible atmosphere for an international agreement could be achieved if Americans would say to the rest of the world: "You see what sort of a weapon we had but did not use. We are ready to renounce its use in the future if other nations join us in the renunciation and agree to the establishment of an efficient international control.

The contrast between the views of the Oppenheimer panel and of the Franck Report signers (who had sympathizers at Los Alamos)⁶⁰ is striking. The divergency turns on the question of the effect of the bomb's use. The Franck Report advances the idea that the explosion would diminish prospects for an international solution. The Oppenheimer Panel believed "that

such use will strengthen the international prospects." How could the international prospects be improved through the use of the bomb. Two means come to mind:

1. the destruction of Japan would contribute to the cause of peace--this is not logically sound, witness our experience with Germany after Versailles.
2. the wave of horror sweeping over the rest of the world when the effects of the bomb were known would lead to renunciation of war--this seems to be the only plausible hypothesis for the panel's conclusion as to the improvement of the international prospects.

The "wave of horror" was precisely the concern of the Franck Report. The divergency, to put a fine point on it, is found in differing interpretations of what was essentially a political or sociological question. The scientists on the Oppenheimer panel, if our reasoning is valid, played God with the lives of two cities full of Japanese. For world peace.

The Franck Report and the decision of the scientific panel did not finish the dialogue about the use of the bomb. Leo Szilard circulated a petition at the Metallurgical Laboratory, which received sixty signatures. The petition presented the moral reasons for not using the bomb, supplementing the essentially political and scientific analysis of the Franck Report. There is no evidence that President Truman ever saw the petition, which was forwarded to Washington on 17 July 1945, after the President had left for Potsdam. Also, one of the members of the Oppenheimer panel, Dr. A. H. Compton, polled 150 Met. Lab. scientists and staff members with academic degrees. Two per cent said that the bomb should never be used, fifteen per

cent said that the bomb should be used in any manner the military saw fit, and eighty-three per cent favored one of three forms of prior demonstration. Compton forwarded the results to Washington on 23 July. Further activity was limited as Met. Lab security officers prohibited the holding of meetings to discuss the question.⁶¹

Dr. Blackett raises another question:

There were undoubtedly, among the nuclear physicists working on the project, many who regarded the dropping of the bombs a victory for the progressively-minded among the military and political authorities. What they feared was that the bombs would not be dropped in the war against Japan, but that the attempt would be made to keep their existence secret for an eventual war with Russia. To those who feared intensively this latter possible outcome, the dropping of the bomb and the publicity that resulted, appeared, not implausibly, as far the lesser evil.⁶²

They did not consider, ~~Bl~~ Blackett goes on, the bombs' use in crowded cities. This is cited here because Blackett, as a scientist associated with bomb research here and in Britain in a direct way (he was one of Rutherford's most brilliant pupils), is in a position to know and evaluate the scientists' attitudes.

For whatever reason, we dropped the bombs, and, to quote Dr. Oppenheimer:

Every American knows that if there is another ^{major}/war, atomic weapons will be used. We know this because in the last war, the two nations which we like to think are the most enlightened and humane in the world--Great Britain

and the United States--used atomic weapons against an enemy which was essentially defeated.⁶³

And Irving Langmuir provides a fitting question:

What would American public opinion now be if we had had no atomic energy development, but if near the end of the war, atomic bombs had been dropped by the Russians on Berlin without adequate consultation? Would our insecurity be entirely relieved if the Russian government, a few months later, had announced [as President Truman did] that it held an increasing stockpile of atomic bombs as a sacred trust.⁶⁴

IV. Whose Atom?

At war's end, the work which had gone on at Los Alamos and the other laboratories of the Manhattan District could be, in part, revealed. The efforts of the scientists, the power of the bomb; all these were splashed across front pages and written into books which contained many scare stories and little information. A 1953 article in the Bulletin of the Atomic Scientists put atomic energy and sex in an analogous position:

Both are relevant to survival and neither should go unharnessed. By some strange social agreement, they are eschewed in polite conversation. . . . Occasionally the two problems boil into public consciousness in the form of lurid magazine articles.⁶⁵

It seemed quite clear at the end of the war that we had spent two billion dollars on a bomb, and spent even more in delivery systems planning; and all this had been done without

people being aware of it. In point of fact, no one outside of our government knew of the effort, with the exception of some British government officials and a handful of Canadians. The Congress knew nothing of the nature of the venture, if Henry Stimson is to be believed.⁶⁶ Now we were faced with the problem: "What to do about atomic energy?" Secret diplomacy had of course been the order of past days. But the nuclear weapons were not just another instrument of state policy. Their significance outweighed even the significance of our commitments in World War II. The question was whether their use and control^Was to be a matter for the fullest and freest public debate, both as to the domestic and international control of the atom; or whether control of the new forces would be visited upon the military and a small group of civilians from the corporations and power companies--a kind of "ruling class control over the means of destruction."

The atomic scientists were to assert themselves politically in this battle. They were to renounce partially the Oppenheimer panel dictum that "we as scientists have no proprietary rights."⁶⁷ The scientists were now to assert social responsibility for the work of five years.

The first substantive question was, "Who shall control atomic energy on the domestic scene?" A tentative answer was given by the military-sponsored May-Johnson Bill. It provided for military control of atomic energy, and for severe penalties for unauthorized disclosures of scientific information or for negligence on the part of scientific personnel which led to such disclosures. Prison sentences of up to ten years were provided for those found guilty. The Bill was introduced in

the House and Senate on the same day by Senator Johnson and Representative May.⁶⁸ On 14 October 1945, Representative May said that the bill had been acclaimed by Drs. Oppenheimer, Fermi, and Lawrence (the latter was head of the University of California Radiation Laboratory).⁶⁹ The bill was opposed instantly by the majority of the scientific community, and Oppenheimer and Fermi later modified their stands. Even at first, Dr. Oppenheimer had qualified his support of the bill with the remark that the powers of the proposed Commission, "if . . . exercised unwisely, could stop science in its tracks."⁷⁰ The day after these remarks, Oppenheimer testified (during the one day of hearings which the May-Johnson Bill received) for the bill as "an interim measure."⁷¹ The May-Johnson Bill was opposed by important forces within the trade unions, such as Philip Murray, President of the C.I.O.,⁷² by liberal journals such as the Nation,⁷³ and the idea of civilian control was even advanced by conservatives like Arthur Vandenberg of Michigan.⁷⁴ Late in October 1945 the Senate set up a committee of eleven following a resolution by freshman Senator Brien McMahon of Connecticut. The Committee was to work with the President, receive some secret information (the President refused to tell them some things), and present a bill. McMahon was committee chairman.⁷⁵ The committee's membership represented many political tendencies, to say the least: Brien McMahon (chairman), Thomas Connally, Arthur Vandenberg, Thomas Hart, Edwin C. Johnson (May-Johnson), Bourke B. Hickenlooper, Eugene D. Millikin, Millard E. Tydings, Richard Russell, and Warren Austin.⁷⁶

The scientists were not unconcerned. Under the leadership of Leo Szilard, Harold Urey, and Edward Condon, scientists began to meet to express concern about the May-Johnson Bill and to find ways to break down the compartmentalization characteristic of wartime research and to begin exploration of constructive uses of atomic energy. With the aid of professors at the University of Chicago Law School, a bill was drafted which put atomic energy under a civilian commission. This bill was introduced by Senator McMahon in December 1945, and his committee held hearings on it.⁷⁷

Meanwhile, of course, the scientists were leaving the wartime laboratories. Oppenheimer resigned 16 October 1945.⁷⁸ (In fact, he said the main reason he was for the May-Johnson Bill was that it would keep Los Alamos and Oak Ridge from falling apart.)⁷⁹

In the interval between the introduction of the McMahon Bill and its passage in amended form, the scientists lobbying efforts were continued most effectively. In late 1945, the Bulletin of the Atomic Scientists was founded "to help educate the world about the atomic bomb."⁸⁰ The Federation of Atomic Scientists (later the Federation of American Scientists) was founded in late 1945, in an attempt to provide a focus for the efforts of scientists on behalf of civilian control of atomic energy. The scientists opened a Washington office, and volunteers streamed in from laboratories across the nation; scientists volunteered their time freely, making speeches, setting up press conferences, writing articles, testifying, lobbying, and in general conducting themselves with the fervor that comes of conviction. And while their

effort was to lobby to get a bill passed, they were concerned also that the public be educated about the hard political decisions which underlay the question of atomic energy.⁸¹

The McMahon Bill, as passed in August 1946, set up a five-man Atomic Energy Commission with broad powers regarding the financing of ^{atomic} research, the allocation of radioactive materials, and the control of atomic information. The A.E.C. was to come under continuing surveillance by the Joint Committee on Atomic Energy of the Congress, which the McMahon Bill also provided for. The A.E.C. took over control of the atomic projects of the Manhattan District at midnight, 31 December 1946.⁸²

The five-man A.E.C. was advised by two committees--the General Advisory Committee, or G.A.C., which was composed of scientists, and the Military Liaison Committee, or M.L.C., made up of representatives of the Joint Chiefs of Staff. The Commission had six operating divisions: Reactor Development (added in 1948), Engineering, Production, Biology and Medicine, and Military Application.⁸³

The passage of the McMahon Bill and the setting up of the G.A.C. marked an express split in the political role of the scientist. The dual role might be sketched as follows:

1. The scientist in government. This scientist participated in one or another of the scientific advisory groups which were appended here and there in the state apparatus, principally where advice about science and the military was needed. Perhaps this type of scientist held a high post in a government laboratory, such as Los Alamos. His power was never great, for his function was always advisory. Also,

it seems clear that the scientists were never called upon to give final decisions on matters of importance.

2. The second role of the scientists was that of public spokesmen for the needs of science. The scientists, right after the war, began to speak of the horrors of the bomb, of the need for an open society if science and statecraft were to flourish and communicate with one another. In this role, the scientists were most effective, as the campaign for the McMahon^{Bill} seems to show.

What were the goals of the scientists in this activity? One cannot, of course, speak with surety. But the scientists have always argued for freedom as an essential condition of their work. This was seen in the arguments for Los Alamos as a place to build the bomb. The post-war drive for public information was merely an extension of the principle of free discussion to all of society. Dr. Oppenheimer, having cast off his earlier notion of "no proprietary rights," wrote:

The scientists have played a more intimate, deliberate, and conscious part in altering the conditions of human life than ever before in our history.

The obvious consequences of this intimate participation of scientists is a quite new sense of responsibility and concern for what they have done and what may come of it. This book [One World Or None--a symposium published by the F.A.S.--M.T.] is in itself an expression of that concern. A more subtle aspect of it, not frequently recognized but perhaps in the long run more relevant and more constructive, is this: Scientists are,

not by the nature of what they find out, but by the way in which they find it, humanists; science, by its methods, its values, and the nature of the objectivity it seeks, is universally human. It is therefore natural for scientists to look at the new world of atomic energy and atomic weapons in a very broad light. And in this light the community of experience, of effort, of values that prevails among scientists of different nations is comparable in significance with the community of interest existing for the men and women of one nation. It is natural that they should supplement the fraternity of the peoples of one country with the fraternity of men of learning everywhere, with the value that these men put upon knowledge, and with the attempt--which is their heritage--to transcend the accidents of personal or national history in discovering more of the nature of the physical world.

The injection of the spirit of the scientist into the problem of atomic weapons, in which it has been clear from the first that purely national ideas of welfare and security would doubtless prove inadequate, has been recognized, if not clearly understood, by statesmen as well as scientists. The emphasis⁶ that has been given--in the statements of the President and the agreed declarations of the heads of state of Britain, Canada, and the United States--to the importance of the re-establishment of the international fraternity and freedom of science

is an evidence of this recognition. It should not be thought that this recognition implies either that collaboration in science will constitute a solution to the problems of the relations of nations, nor that the scientists themselves can play any disproportionate part in achieving that solution. It is rather a recognition that in these problems a common approach, in which national interests can play only a limitedly constructive part, will be necessary if a solution is to be found at all. Such an approach has been characteristic of science in the past. In its application to the problems of international relations there is novelty.⁸⁴

The significance of the remarks justifies the rather extensive quotation. The scientists were, as history shows and we shall presently discuss, checkmated. In the councils of state, they could be ignored, their decisions changed or overridden by the military or the State Department. Before the public they could be labelled, investigated, and stories of spy rings could be distorted all out of proportion to the fact across the front pages of American newspapers.⁸⁵ The scientists, for all his efforts in the councils of state and the public forum, was sandbagged from the start. We do not lack examples.

V. The Russians Can Go To Hell

"I was moved, in the afternoon of my life. . ." With these words, Bernard Baruch presented the United States plan for the international control of atomic energy to the General Assembly in the summer of 1946.⁸⁶ The plan was a revised

version of the ~~Acheson~~^{Ad}eson-Lillienthal Report, drawn up by a Panel of scientists and officials in the State Department. The plan was proposed as a generous measure. We were to give up our atomic "secrets," to aid in the building of atomic installations in other countries.

The fact, of course, was that there was no such thing as an atomic "secret," and that the principal pre-requisite for making a deliverable bomb or a power-producing atomic pile was industrial capability.⁸⁷ These facts seem not to have been public knowledge, even though stressed by the scientists. They were certainly overlooked in press accounts of the plan for international control.

Far more significant, however, were the central proposals of the plan; the Realpolitik which lay at the center of the workings of the proposed Atomic Development Authority. The ~~Authority~~^{Authority} would make all its decisions, including the application of sanctions, by majority vote, instead of unanimously. This departure from the unanimity, or "veto" rule, was a change in U.S. policy. The reason was perhaps contained in the fact that the countries who were to be members of the commission gave it a majority of anti-Socialist representatives. This gave the United States a decided advantage. In addition, to quote the Acheson-Lillienthal Report, on which the Baruch plan was based:

The significant fact is that at all times during transitional period, such facilities--stockpiles of bombs and plant to produce [fissionable] material--will continue to be located within the United States.⁸⁸

Blackett points out additionally that an "immediate reduction of military strength by the USSR" would be the plan's first step, without "any clear reciprocal gain."⁸⁹

But, for the USSR, the unacceptable feature of the plan was the U.S.-dominated development authority, independent of the U.N. and acting by majority vote. This feature was not part of the Acheson-Lilienthal Report, ^hwhich Oppenheimer had so great a hand in drafting. It was adopted by Mr. Baruch against the advice of at least two members of the Committee which drew up the original report. "Mr. Lilienthal and I," wrote Chester I. Barnard (now of New Jersey Bell Telephone), "personally begged Mr. Baruch not to introduce the veto problem."⁹⁰ Robert A. Taft (R-Ohio) later made a speech in the Senate praising Baruch for having introduced the "veto problem," thus saving us from having the USSR accept the plan.⁹¹

Oppenheimer's role, as scientist, in the formulation of the Acheson-Lilienthal Report--which metamorphosed into the Baruch Plan--is typical of the first, or advisory, role of the scientist. The panel that drew up the report was under a Secretary of State's Committee which consisted of Dean Acheson (Under-Secretary of State), John McCloy, General Leslie Groves, James B. Conant, and Vannevar Bush. The Panel members were Dr. Oppenheimer, Dr. Charles Thomas of Monsanto Chemical, Harry Winne of General Electric, David E. Lilienthal of T.V.A., and Chester Barnard.⁹²

Dr. Oppenheimer's function, along with Dr. Thomas, was that of teacher for the rest of the panel. He and Dr. Thomas

were the physicists, and they described how power is produced, how weapons are made, and what a chain reaction is and does.⁹³

Dr. Oppenheimer, according to David Lilienthal, first suggested the notion of international ownership of atomic reactors, as more amenable to control than a system of national ownership with inspection.⁹⁴ The central theme of what was to be the Acheson-Lilienthal Report was contained, however, in one of Dr. Oppenheimer's memoranda to David Lilienthal.⁹⁵ Dr. Oppenheimer was, by any standard, instrumental in forming the "scientific" aspects of the plan--the freedom of inspection, international ownership, the surety that our atom monopoly would not last--these ideas were Dr. Oppenheimer's. They reflected, if one surveys the sweep of scientific opinion, the felt need for freedom for science to proceed, unencumbered by secrecy or threat of war, to explore the problems of fission as they related to peacetime applications.

Dr. Oppenheimer has since testified that he did not believe that the USSR would accept the plan. He said in 1954 that his belief rose from the knowledge that the USSR was a "closed society." In 1948, he wrote that the relevant information for the thoughtful consideration of the plan was secret, thus it could be expected that when the plan was introduced, the USSR would stall for time to look into the matter more fully.⁹⁶ At any event, one must probably discount somewhat the anti-Soviet statements made by a man in the position of Dr. Oppenheimer in his 1954 "security" hearing. Also, the fact was that to the scientist, the central aspect of any worthwhile plan was the freedom to communicate the great discoveries of modern nuclear science to the placed

where they could be used in the service of peace.

One must note, too, that the cynical heart of the Baruch plan, the Realpolitick, can be ascribed to Baruch and his advisors. The insistence and adamance on the "no veto" question, the presentation of the plan as a fait accompli which the USSR could take or leave (and not merely as a basis for discussion, as the panel intended), and the massive publicity campaign to herald the plan as a generous one--these lead to the conclusion that in the end it was Baruch, Vandenberg, Connally, and Byrnes who made the crucial decisions about the international control of atomic energy. These were certainly the men who made atomic policy and international outlook at Potsdam and San Francisco after Roosevelt's death.⁹⁷

Dr. Oppenheimer, as a scientist, was really powerless; though he sat in the highest councils of state, the plan for international control became not a means for establishing trust, but another step in the Cold War. The Russians, as Harry Truman said to his cabinet toward the end of the war "could go to hell."

VI. "Let Me Tell You A Story About Old Man Atom. . . ."

". . . in the particular field of atomic energy, to urge that the United States help initiate and perpetuate an effective and workable system of world control based on full co-operation of all nations. . . ; to safeguard the spirit of free inquiry and free interchange of information without which science cannot flourish. . . ; to promote those public policies which will secure the benefits of science to the general welfare."⁹⁸ With those words in the preamble of its charter the Federation of American Scientists (the successor

of the Federation of Atomic Scientists), formed in late 1945. Its first and principal^{success}, as has been indicated, was in the area of civilian control of atomic energy. In this instance, of course, the scientists were supported by most of the liberal press, the left wing of the labor movement, and the public impact of science's new prestige.

For the scientist, taking public responsibility for his acts was a new phenomenon in 1945. The role of science in the world's wars had been primarily advisory up to then. The advice and work of scientists, where it bore on questions of national security, was given and considered in secret.⁹⁹ For the scientist, the principal concern was with looking into, and knowing, something of how the universe worked. Government officials were certainly conscious that science and policy--science and statecraft--were interrelated and becoming more so. But public debate of questions of policy concerning scientific work was out of the question in war time, even given the fact that policy could be "subverted by false knowledge and seduced by gimmickry,"¹⁰⁰ with all that implies about the need for constant debate and review of policy decisions with respect to science.

Thus, prior to 1945, the two complementary tendencies--the scientist uninterested in policy and/or how his work was applied; and the need for secrecy--coalesced to produce scientific irresponsibility.

The production and use of the Bomb¹⁰¹ brought a sense not only of responsibility, but of culpability. It must have brought also the knowledge that if 'freedom of science' was to have some

have more than rhetorical content, the public would have to be brought to the realization of the need for free interchange of information--or free debate--not in spite of the need for security from war, but because of it. The themes of the scientists, as they strove to make the public aware of the peril~~e~~ and the hope of fission were principally:¹⁰²

1. There is no secret. This theme was designed to combat President Truman's pronouncements to the effect that there was some iron-clad secret bound up in atom bomb manufacture. Oppenheimer and others repeatedly pointed out that science was international; we had no monopoly on learning. The basic work on fission was done by Joliot-Curie of France, and Hahn and Strassman of Germany first reported evidence that fission had occurred. "It seems clear," wrote Oppenheimer, "that much more is involved in the determination of nations to direct their attention toward atomic power or atomic weapons, or both, than their ability to get chain reactions going."¹⁰³ He went on to describe the industrial problem as the principal one facing a nation wishing to make power plants or bombs, given the then-present state of science.

The scientists never succeeded in convincing the majority of people that there was no secret. As one after another of the "atom spy" plots were "uncovered," public opinion came to regard our atomic weapons as the product of a uniquely American scientific experience, "and others would just have to catch up with us."¹⁰⁴ There were, quite obviously, Soviet efforts to find out what we were doing in atomic energy and atomic weapons. But that there was a wholesale number of secrets to steal before one could build a bomb seems ludi-

crous. Equally absurd were the predictions of some military experts that it would take 20 to 60 years for the USSR to have an atomic bomb. Most scientists put the figure at four to six years in 1945. Thus, in an extensive, random sample survey taken in June 1946, 40% favored holding on to our "atomic secrets" while only 10% favored free exchange under a system of international control (others favored limited exchange, as with our allies).¹⁰⁵

It is a grotesque distortion to say that the fact that no exchange of scientific information of an important character took place is a triumph of democracy because the polls showed that "no exchange" is what the people wanted. The fact is that there is very little which can or could be called be called "secret" today or in 1946, for the universe does not require non-Communist affidavits from those who would seek information about it, and the parallel development of science here and in the USSR is evident. That is the fact. The American people were sold a lie by their government, and the scientists had not enough facilities, hours, or money to counter it. Any popular judgement based upon a lie from the leaders is, ipso facto, not made in accord with democratic principles.

2. The second argument of scientists was that there is no defense in a world with atomic weapons. Indeed, "There Is No Defense" was the title and last sentence of the article on atomic defense which appeared in the Federation of American Scientists book One World Or None. In this same book, Philip Morrison had a frightening piece about the effects of atomic weapons, effects from which there was no defense. In retro-

spect, and in his review of P. M.S. Blackett's book, Dr. Morrison agreed with Dr. Blackett that the success of the argument that "there is no defense" may not have advanced the larger goals of the scientists as enumerated in the F.A.S. statement quoted above. Dr. Morrison writes:

I wrote of the lingering death of the radiation casualties, of the horrible flash burns, of the human wretchedness and misery that every atomic bomb will leave near its ground zero. Against this misery there is no real defense. Neither our oceans, nor our radar, nor our fighters can keep us intact through another major war. But, --and I quote Blackett(p. 159): "the very effective campaign, largely initiated by the atomic scientists themselves, to make the world aware of the terrible dangers of atomic bombs, played an important part in bringing pressures to bear on the American government to propose measures to control atomic weapons and to take them out of the hands of the military. The very success of this campaign was in the end one of the major causes of the failure of the plans for control. For the American public became so frightened that nothing but the prospect of 100 per cent security became acceptable. The only possible way in which the American people can obtain complete safety from atomic bombs is by effective American control of all other nations. . . . So the widespread publicity to the real "Horrors of Hiroshima" unwittingly gave impetus to a drive to attain ^{as great} a security as America had enjoyed in the past. Clearly this could only be attained by measures which were themselves likely

to provoke a third world war and so to increase the likelihood of more Hiroshimas. In fact, as in ordinary life, the only real safety lies in taking reasonable risks. But to the overcharged imagination and the uneasy conscience of the American public no risks appear reasonable.¹⁰⁶

3. The third notion stressed by the scientist was that science cannot flourish without the free flow of information and ideas. The scientist never proved this point, partly because it is not strictly valid. Science can flourish without international communication. Competent men in the United States and the USSR built hydrogen bombs in secret, independently developing the lithium-hydride core. Free communication is needed if scientific discoveries are to be made of greatest benefit to mankind--if the pool of scientists is to be increased and if new discoveries are to be applied quickly. For example, distribution of medically useful isotopes was held up in the years after the war because of security regulations, and Lewis L. Strauss was still arguing against such distribution in 1949.¹⁰⁷ But that was a peaceful concern. And peaceful concerns were far from the minds of most when atomic science was mentioned in the years after World War II. In C. P. Snow's words:

Science needs discussion, yes; it needs the criticism of other scientists: but that can be made to exist in the most secret projects.¹⁰⁸

It was at the point where science merged with policy that

public debate was essential. Thus, the activities of the F.A.S. and related organizations represented an effort to bring the public to an awareness of the problems of atomic energy, to give dispassionate analyses of the alternatives, to advocate some steps for control, to talk to Congressmen and constituencies; to, in sum, accept and discharge the responsibility for having borne the bomb. The goal was impossible of achievement, given the forces arrayed against the scientists. From the first atom-spy story to the Oppenheimer security-risk hearing, the scientists found that the core of their argument, the part about free communication, was red-baited. Loyalty oaths were asked, beginning in 1949, for recipients of A.E.C. fellowships (to study non-military physics). At that time, it was clear ^{that} ~~to~~ some scientists (including the American Institute of Physics) preferred not to risk denouncing the new restriction. Leo Szilard roundly condemned this refusal by scientists to stand and fight, in an article in the Bulletin of the Atomic Scientists.¹⁰⁹

The House Committee on Un-American Activities, ⁶ called Edward Condon a security risk as early as 1948, and Joseph McCarthy had evidence, he said, of Communist infiltration into the American Association for the Advancement of Science.

To get an idea of the magnitude of this attack on the scientists, one need merely read the Bulletin of the Atomic Scientists for the relevant years. Thus, the offensive for international control in the U.N. and civilian control in the U.S. had to give way to defensive maneuvers to maintain "face" and "image," the better to be able to argue for the

larger goals of peace and atomic control in the future. This "lesser of two evils" or "this is not the time to make a stand" theory came under attack in Dr. Szilard's article:

Are we scientists going to follow the tradition of the lesser evil? Our colleagues in Germany have trodden that path. . . .

The German scientists would not, of course, have saved academic freedom in Germany even if they had raised their voices in protest in the early days of the Nazi regime when they could still do so with impunity. They could not have changed the course of history, but they could have kept their hands clean.¹¹⁰

Integral to Szilard's argument is the notion that the red-baiting was only a tactic in the minds of those who directed it, as anti-Jewishness and anti-bolshevism ^{were} ~~was~~ only ~~a~~ tactics for Hitler and the German ruling class.

It was this attack and counterattack which led some scientists to a clearer perception of just what it was that was vital about this matter of the free flow of information. The need for this kind of open communication could now be demonstrated as three-fold.

First, greater progress could be made in the non-military uses of scientific information. Second, an atmosphere of trust would be set up, allowing for a more fruitful basis for further negotiation; and third, the public in a democratic society needs to have all relevant information available to it in order to come to the wisest and most considered decisions about policy.

This does not mean that the public could decide, for example, whether or not it is possible to make a hydrogen bomb. It does ~~not~~ mean that, given abstracts of all relevant data on the effects and consequences inherent in the building of such a weapon, the public can decide whether or not it is wise as a matter of policy to build it.

Free inquiry, then, became not just the special concern of the scientist; rather, in the mind of the scientist, it was a requisite of democracy. And if all were not aware that the campaign of the Congressmen was not merely a technique to harass scientists--if all were not aware that the members of the public were the real victims of ^p suppression/through red-baiting and excessive secrecy about governmental decisions--the fact was established by the circumstances surrounding the decisions to build the hydrogen bomb and by the "Oppenheimer case" of 1954.

VII. "...no limits exist to the destructiveness of this weapon."

On September 23, 1949, President Truman announced that "we have evidence that within recent weeks an atomic explosion occurred within the USSR."¹¹¹ The government of the USSR countered with the assertion that Molotov had not been bluffing when he said in 1947 that there was no longer any secret about the atomic bomb.¹¹²

The reactions of scientists to this announcement were manifold. The Bulletin of the Atomic Scientists pointed out that atomic scientists had said all along that there was no secret; but there were still those who called the reported Soviet device a "Beria bomb," meaning that it had been stolen

from the U.S. atom laboratories and assembled in the USSR. Harold C. Urey took the occasion to chide the government's security procedures for keeping scientists out of military work. He underscored his own apprehension about the state of world affairs, and added, "sometimes I feel that the difficulty of approaching Washington today is about as great as it was when Professor Einstein brought the problem of atomic energy to the attention of President Roosevelt." ¹¹³ Leo Szilard argued for new political forms to cope with the problems of a world in which antagonistic national states have atomic weapons.¹¹⁴ He drew an analogy to the Peloponnesian Wars--to the unwanted and destructive conflict which brought down grand Athens as she listened to demagogues, militarists, and chauvinists.

possible
There were several ^{possible} responses ~~with which~~ to ~~meet~~ the Soviet announcement. We could seek new political forms, undeceived by self-righteousness about the Baruch Plan (the cautionary words about self-righteousness were Szilard's); or, we could answer the announcement militarily.

The scientists' public statements argued for a new effort at conciliation, taking Premier Stalin at his word:

The believers in the atomic bomb might consent to the prohibition of atomic weapons only when they see that they are no longer the monopolists.¹¹⁵

The concern for civil liberties, the defense against attack from Congressional committees--these had been the principal concerns of scientists after the stillborn efforts at international control in 1946. The Soviet explosion--or

rather President Truman's announcement--brought forth once again expressions of the need for control of atomic energy and elicited plans for world peace. The contrast is sharpened by leafing through the Bulletin of the Atomic Scientists. The scientists spoke up on civil liberties issues in the early part of 1949; they seemed to have accepted the Cold War as a condition of existence. Beginning with President Truman's announcement of a Soviet explosion, and rising in intensity through and after the announcement that the United States would make a hydrogen bomb, were new and vigorous exhortations from the scientists to find ways to end the arms race, to throw open to the American people the question of building the H-bomb, to renew United States efforts for peace and democracy.

It should be emphasized that no scientists expressed themselves publicly on the question of a crash program for the super bomb during the time from the President's announcement of the detonation in the USSR in September 1949 and the announcement of the decision to begin work in January 1950. It was not until about two months after the H-bomb decision that anti-H-bomb remarks began to appear in print.¹¹⁶

These were the concerns with which the scientists faced the public; how did he fare in the chambers of state? Poorly, poorly. The principal scientific advisory agency, and the one to which the problem of the H-bomb was thrown, was the General Advisory Committee of the Atomic Energy Commission. The Committee, at its first meeting in 1947, had elected Dr. Oppenheimer its chairman, a post which he filled until his

resignation from the G.A.C. at the end of 1952. The question before the General Advisory Committee was couched in terms of a reaction to the Soviet atomic explosion; it was a double question: "What should they do and should they do this?"¹¹⁷ "They" refers to the military and the State Department; "this" refers to an all-out program on the hydrogen bomb. The General Advisory Committee (including at that time Dr. J. Oppenheimer, Conant, Rabi, Fermi, Buckley, Dabridge, and Smith) met on 29 October, first with the A.E.C., then with George Kennan, head of the State Department Policy Planning Staff, and with military representatives, including Admiral Parsons, General Bradley, and the head of the Weapons Systems Evaluation Committee. They then went into closed session to debate and discuss the matter.¹¹⁸

The central questions with regard to thermonuclear weapons development obviously lay in two disparate areas: first, the technical feasibility of building such a weapon; second, the political or moral desirability of having it assuming that you could build it.

The first of these questions had been under continuing consideration by atomic scientists since 1942, and the General Advisory Committee had taken it up on several occasions. Dr. Teller had done some work on the thermonuclear problem at Los Alamos during World War II, and he had continued to work on fusion after the war. But there had been no evidence to show that a fusion weapon was possible, or if one could build it, that it would be financially feasible, or that it would be of a militarily usable size. On 29 October 1949,

the G.A.C. had no definite answers to these questions. It was not until 1951 that Edward Teller made his "invention," the lithium-hydride core which is integral to a cheap, relatively small and easy-to-build hydrogen bomb.

These then were the prospects facing the G.A.C. Teller met with Oppenheimer before the G.A.C. session and urged a recommendation for an immediate, all-out program on the super bomb. The G.A.C., with one member absent (Seaborg), agreed unanimously that "the United States ought not to take the initiative at that time in an all-out program for the development of thermonuclear weapons."¹¹⁹

The G.A.C. report to the A.E.C. contained several points in regard to the dual problem which it was considering:

1. expand, improve, and diversify fission weapons stockpiles;
2. build new types of plants to give greater choice with regard to weapons;
3. in terms of the then-known facts, the United States should not go all-out to build H-bombs;
4. the then-conceived bomb "was not economical in terms of damage per dollar;"
5. the cost in fission weapons (substitution of one kind of effort for another with limited technical resources) was too great;
6. Soviet development of atomic weapons was "imitative" and we should not set the pace in the making of fusion weapons.¹²⁰

On these points, there was unanimity. The moral issue raised a question which split the Committee. Enrico Fermi and

I. I. Rabi filed a "minority report" stressing that, outweighing all the factors mentioned in the decision of the G.A.C., there was another consideration which was more important.¹²¹ They maintained:

The fact that no limits exist to the destructiveness of this weapon makes its very existence and the knowledge of its construction a danger to humanity as a whole. It is necessarily an evil thing, considered in any light. For these reasons, we believe it important for the President of the United States to tell the American public and the world that we think it is wrong on fundamental ethical principles to initiate the development of such a weapon. ~~122~~ / 2 /

The others, in their report, did not ignore the ethical question, but tended to lump it in as a factor rather than attaching overriding importance to it. The majority report summed up its concern with the ethical question by saying:

In determining not to proceed to develop the super bomb, we see a unique opportunity of providing by example some limitations on the totality of war and thus of eliminating the fear and arousing the hope of mankind.¹²²

As the official advisory body on matters of atomic science continued its deliberations, other, non-official scientists were busy. Edward Teller had "visited the Air Force," explaining his views on the thermonuclear program in October 1949.¹²³ In mid-November, Dr. Teller went to see Senator Brien McMahon, chairman of the Joint Committee on Atomic Energy, and urged

that McMahon use his influence to get an H-bomb program started, which, according to Teller, McMahon agreed to do.¹²⁴ Also in October, 1949, Drs. Lawrence and Bradbury (pro-H-bomb) visited the Air Force Special Weapons Project to discuss the super bomb.¹²⁵

Teller, Bradbury, and Lawrence were quite successful in their talks with the military men. General Nichols of the Special Weapons Project went to see General Vandenberg, who directed Nichols to tell the Joint Chiefs of Staff at the 13 October 1949 meeting that he favored H-bomb development.

On 14 October 1949, the Joint Chiefs of Staff met with the Joint Committee on Atomic Energy, "where General Vandenberg, speaking for the Joint Chiefs, strongly urged the development of the thermonuclear weapon."¹²⁶

General Vandenberg indicated not only the Joint Chiefs' view, but added that "we have built a fire under the proper parties."¹²⁷ The "proper parties" referred to the Military Liaison Committee of the A.E.C., which was also considering the super program, and to those A.E.C. members and scientists which the M.L.C. could influence. The Joint Committee on Atomic Energy received on 14 October 1949 what was apparently its first testimony about the scientific view of the new weapon; this was the restatement by General Nichols of what he had learned from Teller, Lawrence, and Bradbury. Oppenheimer appeared ^{later} to give the G.A.C. view.¹²⁸

On 9 November, the A.E.C. reported its views and the G.A.C. views to President Truman. Three Commissioners opposed the development of the super bomb. These were David E. Lillenthal, Sumner T. Pike, and Henry DeWolf Smyth. Lewis

Strauss favored a crash program; Gordon Dean favored development with reservations.

On 19 November 1949, President Truman created a sub-committee of the National Security Council to advise Admiral Sowers of the N.S.C. concerning the military view of this weapon. It included General Nichols, Admiral Hill, and General Norstad. On 13 January 1950, the military view was set out in a letter to the Secretary of Defense from General Bradley of the Joint Chiefs.¹²⁹

The problem of the H-bomb was also discussed by George Kennan, former ambassador to the USSR, career diplomat, and head of the State Department Policy Planning Staff. Mr. Kennan had been asked by the Secretary of State to give his views concerning the question of H-bomb development, which he did. In sum, Mr. Kennan's view was that unless and until the United States decided its attitude toward atomic weapons in general, it ought not to embark on a "super program." These decisions, Mr. Kennan felt, should have embraced the following points:

1. do we genuinely want international control of atomic weapons;

2. do we want a first-strike capability or a retaliatory-deterrent capability? The atom bomb, Kennan thought, was quite enough to deter the USSR;

3. why do we have Atomic, Biological, and Chemical weapons?

4. are we interested only in the mathematics of destruction, or is it our ^{wish} policy to be more "constructive" in our foreign policy?

In short, he said that no one had proved to him that "we could not do the job with the weapons we already had" and indeed, no one had said what the "job" was.¹³⁰

The public speculation and information about the H-bomb were limited to some vague references to interest in a "super-bomb" by Senator Edwin Johnson on a network TV program which was broadcast on 1 November 1949. Senator Johnson was a member of the Joint Committee on Atomic Energy. He was reprimanded by President Truman for his disclosure. On 2 December 1949 and 2 January 1950 the brothers Alsop revealed some "facts" about a new "1,000 power" bomb. They spoke of the debate over the crash program on the weapon.¹³¹

On 1 February 1950, President Truman announced that a decision had been reached two days earlier. The decision as announced was that the A.E.C. "continue its work on all forms of atomic weapons, including the so-called super bomb."¹³² To the scientists, it was obvious that this meant "back to the laboratories" (Teller's exhortation) and a crash program.

The published reactions of the scientists were varied. Teller's is perhaps the most interesting:

However it is not the scientist's job to determine whether a hydrogen bomb should be constructed, whether it should be used, or how it should be used. This responsibility rests with the American people and with their chosen representatives.¹³³

This statement from the man who, as a "scientist," had lobbied the Joint Chiefs of Staff, hardly anybody's "chosen representatives," for an all out H-bomb program.

Other scientists were of different persuasion.¹³⁴

Einstein wrote that arms bring no security; Urey thought that it should be built, but deplored the veil of secrecy cloaking the decision; the F.A.S. expressed no opinion, but pleaded for new negotiations with the USSR; Arthur Compton advocated that the public be given a voice in the decision; and a group of distinguished scientists ⁶ (including Bethe and Weisskopf) called for a U.S. pledge not to use the H-bomb first.

But the decision had already been made.

There are those who would argue^u that the conflict over the question, "Shall we build the hydrogen bomb?" was a kind of conflict of elites, with Oppenheimer, Fermi, Rabi, the G.A.C. and most scientists on one side, and the Air Force air power pundits, State Department sword-rattlers and massive retaliators and Edward Teller on the other side. According to this view, Oppenheimer and Co. lost, and Teller and Co. won. This statement is correct of course, as far as it goes.

In the last analysis, however, it is not just Oppenheimer that lost. It is all of us and democracy that lost. Here was a decision--another in a series which may signal an end to human history--that was discussed, made and carried out without any public knowledge, discussion, debate, or decision. In the excitement over the content of the decision, we forget who shall be competent to take it. Let us reflect on this point.

C. P. Snow has argued:

Scientists have it within them to know what a fut-

ure-directed society feels like, for science itself, in its human aspect, is just that.

That is my deepest reason for wanting scientists in government.¹³⁵

The problem, as Sir Snow sees it, is that:

We [of the West] are becoming existential societies-- and we are living in the same world with future-directed societies.¹³⁶

One doesn't know whether or not Snow intended to sound as much the technocrat ^{as those statements seem to imply}. Certainly it is possible to see, in the post-war wave of political activity by scientists the rise of a new and "future-directed" set of pretenders to seats in the house of the power elite. To such theoreticians, the words of Mosca in criticism of Marxism must seem congenial:

The only social conflicts, bloody or bloodless, that have resulted in actually modifying the organization of society and the composition of the ruling classes, have been started by new influential elements, new political forces, rising within governed classes (but representing small fractions of them numerically), and setting out to obtain a share in the government of the state which they thought was being withheld from them.¹³⁷

But to see in the course of events we have surveyed a mere contest of elites would be to miss the significance of these last twenty-five years of history. To see a struggle, as C. P. Snow does, where "our side" (Oppenheimer) lost, is also to miss the point. For to look at events in this way is to fail to ask how it is that a set of minimal "demands"

by scientists came to be spurned.

For the scientists, it was not so much a question of shall we build the bomb or not. It was a question of providing the same continuing criticism and evaluation of policy decisions that he had come to regard as essential in his work--in short, democracy. It was perhaps an unarticulated search for a new authority principle.

Oppenheimer's statement on a radio program broadcast on 12 February 1950 is illuminating:

The decision to seek or not to seek international control of the A-bomb, the decision to try to make or not to try to make the H-bomb, are issues, rooted in complex technical matters, that nevertheless touch the very basis of our morality. There is grave danger for us that these decisions have been taken on the basis of facts held secret. This is not because the men who must contribute to the decisions, or must make them, are lacking in wisdom; it is because wisdom itself cannot flourish without the give and take of debate or criticism. The relevant facts could be of little help to an enemy; yet they are indispensable for an understanding of questions of policy. If we are wholly guided by fear we shall fail in this time of crisis. The answer to fear cannot always lie in the dissipation of the causes of fear; sometimes it lies in courage.¹³⁸

This sentiment was expressed with similar emphasis

! ← by other scientists and by Dr. Oppenheimer again on a

! ← "See It Now" telecast of 4 January 1955.¹³⁹ And this

is the central point. General Vandenberg in 1949, Baruch in 1946, Truman and Byrnes in 1945 (and John Kennedy in 1961) knew what to do to further the aims of American foreign policy. The Cold War, begun again at Hiroshima, and carried on before the United Nations, the buildup of a weapon with little conceivable defensive use (and an imperialist crusade against Cuba)--these were decisions made in secret. And the makers showed no intention to have them made otherwise.

To say that the President had a hand in making these decisions, and he is elected, and therefore they were made democratically, is to speak fatuously. To say that the American people--polled by Gallup--agreed with the ^{si}decisions and for that reason they were democratic is to do even more violence to democratic theory. The truth is that the facts surrounding the decisions were never made public (or else lies were reported as fact)--thus obviating any intelligent debate, thus nipping any notions one might have about how democratically the process of decision was. For without facts to judge his proposed course of action, the President is not responsible to the people; and the people are not responsible to decide.

would have

The cry for public information/dealt a serious blow to the plans of those who made the decisions. The risk, at any fate, was not, for the/deciders, worth taking.

The scientist would be overruled in committee; he struck a pose too like Antony in the forum.

This was seen in a dramatic way in the "Oppenheimer" case."

VIII. The Half-life of Democracy

The revocation of Dr. Oppenheimer's security clearance has been the object of much exegesis. It would be fruitless to our inquiry were we to regurgitate the analyses. But there are aspects of the case which should be listed:

1. The hearing revealed much previously buried information about the major military and diplomatic decisions of 1940-1954. This is partly revealed by the number of footnotes in the present study to the transcript of the Oppenheimer personnel security board hearing.

2. Whether by design or accident, the procedure eliminated the very persuasive person of Dr. Oppenheimer from the councils of state; and it seriously mitigated any influence he might have had with the public.

3. As a corollary, the procedure lent credence to suspicions about scientists which had been fostered and circulated since 1945.

4. It eliminated Dr. Oppenheimer as the country's most influential scientist (Father of the A-Bomb) and gave that position, for the nonce, to Edward Teller (Father of the H-Bomb).

Also, despite considerable obscurantism in the opinions of the A.E.C. on the matter, the reasons for the attack on Dr. Oppenheimer are shown.

To establish these points firmly, it is necessary to read the 992-page transcript and the issues of the Bulletin of the Atomic Scientists for May, June, and September 1954. Let us look, though, at some relevancies.¹⁴⁰

In a letter of 23 December 1953, General Nichols, for-

merly of the Air Force and then General Manager of the A.E.C., suspended Dr. J. Robert Oppenheimer's security clearance; this was done with the knowledge of A.E.C. Chairman Lewis Strauss. Dr. Oppenheimer spurned the alternative of allowing his clearance to be lifted without question, and a Personnel Security Board was convened. This board sat and heard witnesses for Oppenheimer and witnesses against him. Its attorney was Roger Robb, attorney also for Fulton Lewis, Jr.

In the hearing, Dr. Oppenheimer told the full story of his left-wing associations, even to giving dossiers on his friends. He detailed his every action on behalf of the U.S. government. The Board developed information on the twenty-four specific allegations in General Nichols' letter. In the words of the Board's majority:

The facts referred to in General Nichols' letter fall clearly into two major areas of concern. The first of these, which is represented by Items one through 23, involves primarily Dr. Oppenheimer's Communist connections in the earlier years and continued associations arising out of those connections.

The second major area of concern is related to Dr. Oppenheimer's attitudes and activities with respect to the development of the hydrogen bomb. . . .

We feel that Dr. Oppenheimer is convinced that the earlier involvements were serious errors and today would consider them an indication of disloyalty. The conclusion of this Board is that Dr. Oppenheimer is a loyal citizen. . . .

We cannot dismiss the matter of Dr. Oppenheimer's

relationship to the development of the hydrogen bomb simply with the finding that his conduct [his opposition to the super bomb, his failure to encourage scientists to work on the bomb] - M.E.T.] was not mitigated by disloyalty, because it is our conclusion that, whatever the motivation, the security interests of the United States were affected.

We believe that, had Dr. Oppenheimer given his enthusiastic support to the program, a concerted effort would have been initiated at an earlier date.

The Board likewise concluded that Dr. Oppenheimer, in the course of talking with F.B.I. and security agents, and before the Board itself, had been "less than candid" in some instances. This was mentioned in one line in the last sentence of the majority report.

two
The Board decided, by a ~~three~~-to-one vote, to recommend to the A.E.C. that Dr. Oppenheimer's clearance not be reinstated.

One is moved to comment that the principal reason for the Board's decision seems to be that Dr. Oppenheimer was "wrong" about the hydrogen bomb. Not only that, but that he was wrong according to a definition hatched by the Joint Chiefs of Staff. Thus, he was held to be unqualified to sit on committees and advise the government--he was a security risk. One could ask, "Whose security?" and "What risk?"

General Nichols' letter to the Commission accompanied the Personnel Security Board findings when they were sent up for review, and General Nichols also recommended against

clearance. The letter does not regard the hydrogen bomb incident as significant, as did the Board. The General does say, though:

. . . I believe that since World War II, his value to the Atomic Energy Commission has declined because of the rise in competence and skill of other scientists and because of his loss of scientific objectivity probably resulting from the diversion of his efforts to political fields. . . . 142

In other words, Dr. Oppenheimer developed a sense of social responsibility and that made him unfit for government service--that is the only interpretation which one can put upon that statement.

The final blow, the A.E.C. Majority Report which was signed by Commissioners Strauss, Zuckert, and Campbell, was the most quixotic document of all. It never once mentioned the hydrogen bomb. It rather seems to hinge on the allegation that Dr. Oppenheimer had fallen short of standards of "reliability, self-discipline, and trustworthiness." 143 The evidence included mainly discrepancies between 1943 incidents and 1954 recollections. These were not even mentioned in General Nichols' letter of 23 December.

Finally, it must be stated that Dr. Oppenheimer aroused the enmity of the "wrong" people in Washington--those with power. The brothers Alsop, in their analysis of the case, devote a chapter to "the Oppenheimer haters," 144 And, in the dissenting report of A.E.C. Commissioner Smyth, there

is the assertion:

For much of the last eleven years, . . . , [Oppenheimer] has been under actual surveillance, his movements watched, his conversations noted, his mail and telephone calls checked. This professional review of his actions has been supplemented by amateur help from powerful personal enemies.¹⁴⁵

In addition, it should be noted that one of the men who testified "against" Oppenheimer in the personnel security hearing was sent to do so by the Joint Chiefs of Staff.

The entire Oppenheimer case was subjected to a scholarly and reasoned review by Harry Kalvan, Jr., of the Chicago Law School, who concluded with this observation:

As we noted at the start, the Gray Report [The majority report of the Personnel Security Board] recognized that the security system was on trial along with Dr. Oppenheimer. It is the security system and not Dr. Oppenheimer that, in the end, has lost its case.¹⁴⁶

From this author's point of view, one significant aspect of the case is the matter of the powerful personal enemies, who certainly included Strauss, Teller, and some members of the military. An ^{undue} emphasis on this point would lead one to the conclusion that we looked at previously--one elite has downed another in the Oppenheimer case as in the H-bomb matter.

This notion proceeds from a view of society which says that elites, or ruling classes, exist as a matter of course. The sterility of this concept becomes evident when we ask the basis on which these men of power have their power, and in

whose interest they act. The pyramidal view of society which this formulation calls up may be accurate for today, but it is hardly adequate for the purpose of social analysis. It suggests a form of society without giving any clue as to what motivates the actors. We will return to this in a moment.

C. P. Snow, in arguing that scientists should be in government, says that they are future-directed. But the scientist is not the only future-directed individual. For the Marxist, and (in a more limited sense) for the liberal, the masses are also future-directed; in the long run they constitute the social movements which bring about deep-seated changes in the form of society. The workers and peasants of Cuba, the Chinese who overthrew Chiang, and the advance of socialism in the underdeveloped lands would seem to augur well for the theory that the people can evaluate their society and condition and act ^{to} ~~the~~ change them.

And, in our example, a man need not be a scientist ~~him~~ to comprehend the meaning of Hiroshima, or of the hydrogen bomb. All he needs are the facts. When given the facts, democratic theory and many examples tell us that people at large are future-directed. That is why it is not that we need more scientists, but that we need more people, in government.

The scientist's sin, and Oppenheimer was a symbol in many ways, was that he talked too much. He was a democrat. And to be a democrat was to talk to the people and tell them the truth; and perhaps to suggest that they intervene in the making of the decisions of their government. To do this was to be a risk to security.

The obvious fact, of course, is that the scientist was sandbagged from the beginning. He had neither resources, nor media, nor words enough to counter the lies, the obfuscations, and the calumny. And he did not have the bravado to break the bonds of security and say straight out what the trouble was. Recall the Oppenheimer statement on secret decisions. The background to each of his carefully chosen phrases is a damning indictment of the decision making process of the government.

What can we deduce from this recital?

Recall that Machiavelli, in The Discourses, argued for the superiority of the republican form of government. He did so, he said, because such a form gave the people the illusion that they participated in, or consented to, the making of basic decisions. Therefore the people were more tractable. For similar reasons, Machiavelli argued for foreign involvement. The enmity of a powerful foreign country served to solidify support for the regime and to render sterile those who would make changes in the form of society. One could always accuse the advocates of change of attempting to weaken the country in the face of a great common threat. The homage to republican institutions on the part of today's leaders strikes a similar chord. The emphasis is on manipulation of popular sentiment, rather than discourse about problems. Such an emphasis was the principal obstacle in the path of the F.A.S. as it attempted to encourage discussion of the problems of science and society. Such emphasis heralds the death of democracy.

Machiavelli, and the conservative theoreticians of the

nineteenth century, thought that popular control of the decisions of state would produce anarchy and confusion. The masses simply were not able to govern themselves adequately, and it was in everyone's interest that a ruling segment make the decisions. Indeed, Robert Michels argued that mass participation was impossible, that control always tended to gravitate to an oligarchy. The decisions of the years since World War Two twice cast doubt upon the contention that it is in the interest of all that a ruling group make the decisions. The decision to drop the atomic bomb, or not to seek international control of atomic energy, or (and George Kennan points this out) to build the hydrogen bomb--these decisions were not in the interest of the public, either in form or substance. The form of the decisions contributed to the dearth of public knowledge and awareness of social problems, for the decisions were cloaked in lies. The substance of the decisions impelled this country along a path that ends in nuclear war. This is not to say that the decisions or the deciders were irrational. While we may criticize their decisions from the standpoint of objective reason, they do have an internal consistency, and it is possible to view post-World War Two policy as a cohesive entity. Let us explain this contention.

For the American ruling class, the advance of socialism after the Second World War was a frightening phenomenon. This is reflected in the diplomatic and military responses to socialism, some of which we have discussed. For the American ruling class, there are two alternatives in the face of the advance of socialism. First, that the advance is in-

evitably vigorous. Second, that it is somewhere stopped or rolled back. In the first instance, the victory of socialism brings death and ruin to the ruling class. If we are committed to the second alternative, there is the likelihood of nuclear war in an attempt to meet the threat militarily. Herman Kahn tells us that there is a mathematical chance of survival in thermonuclear war. The mathematical chance of survival, contrasted with certain ruin ^{by} the continued advance of socialism, provides really no alternative for a ruling class which objectively appraises its interests. Aspiration lies only in the direction ~~in the direction~~ of the defeat of socialism. In such a context, the decisions we have surveyed acquire a frightening kind of consistency.

Peaceful competition ^{is} ~~is~~ a test of the relative vigor of the competing systems does not seem to be acceptable. It is admitted by many that socialism countries are more efficient in the production of goods, perhaps because the productive machinery in such countries is geared to the production of goods rather than profit. But the price of a military response to socialism seems to be the death of public participation in the decision-making process. This participation is, of course, the very thing which allegedly distinguishes this country from socialist societies. But if that is the price, then that is what the American ruling class is committed to pay.

Thus, in the decisions we have examined, a new principle of legitimacy for our state shines through. Gone is the individual involvement in public affairs. All that remains is the pretense of involvement, the pretense of democracy.

Let us now deal briefly with the contention of Michels; namely, that it is impossible to achieve popular participation in the decisions of any large organization. Orwell has much the same view, and sees no hope for democracy in the future, having a vision of a future world composed principally of heels of boots grinding into faces of men. These visions remind one of none so much as the view of socialism presented by the capitalist magazine advertisements. The public support which the scientists managed to generate for the McMahon Bill is one indication of ~~how~~ how mass communication can be used for an extension of democracy through encouragement of public discussion and debate. Collaterally, the reports from Cuba indicate the great involvement of the Cuban citizen in the decisions about Cuban development. This gives signs for hope that in a rationally ordered society, it is possible to achieve democracy.

Implicit in the foregoing is the rejection of any kind of theory of a "military metaphysic," the ordering of the military mind such that response to world problems is seen in terms of force. This argument can hardly stand the sound of its own voice. What are the problems to which the military man responds, and how are they defined? The crux of decisions to use force is contained in what one regards as problems, and how serious one may regard a given problem. This is in turn conditioned by an appraisal of the threat to one's interest and values inherent in any given situation. Thus, the military metaphysic is a secondary phenomenon. The

recourse to military means, the decision not to have international control of atomic weapons, and the decision to build the hydrogen bomb were decisions made in terms of what would be the best approach to the defeat of socialism. They were not all military decisions, some were diplomatic in character, yet the goal remained the same.

Today, the American ruling class is faced with a crumbling empire--today Cuba, tomorrow all of Latin America and the underdeveloped lands in Asia and Africa. The socialist system seems to be more efficient--in the underdeveloped areas socialist development patterns are emerging. The ruling class responds with policies designed to insure its survival and control--not to assure that we shall not all be obliterated. The stockpile of arms becomes simultaneously protection and instrument of death. The Marxist surveying this situation can only ask what means are available to prevent a cataclysmic reply by the American ruling class to the spread of socialism.

The piecemeal decay of the empire, with one after another country travelling the route now taken by Cuba, provides one hope. Such a decay creates and accentuates divisions in the ruling class.

In an area more germane to our discussion, we see the scientist claiming the rights which are de jure those of the people--review and criticisms of proposed courses of action. The contention between state and scientist in the post-war years centered on the question of legitimacy which the scientist sought to raise. To raise such a question by demanding

that the public be "in" on major decisions was of course to attack the very basis of the system of the concentration of state power in the hands of those who felt no obligation to involve, or even tell the truth to, the public.

We spoke at the beginning of the search for a new principle to give legitimacy to authority, and the serious questions posed by the development of control of the bomb. We mentioned that the concept of natural right had evolved to give legitimacy to an entrepreneurial economic system with bourgeois democratic political institutions. We touched upon the fact that considerable violence must be done to natural right words and concepts in order to be able to use them to describe social relations under a system of monopoly capitalism.

But think how much more grotesquely we must distort the theories of bourgeois democracy to have them apply to the events and decisions of the past twenty-five years. Then recall how the notions of fascism evolved in explicit form as legitimacy for a manner of government. They evolved, it is suggested, because the goals and needs of the capitalist class--strong state power to conquer world markets foremost among them--could not be satisfied by any state form to which natural rights words and concepts could conceivably apply. So, while control of the means of production remained in the hands of the capitalist class, the juridical relationships of bourgeois democracy were abandoned.

In this study, we have covered an era of scientific progress unrivalled in history, and dealt with the major decisions of our time. Yet the most important result is the struggle

not over the content of the decision--its "what"--
but rather the question of who is competent to take it--its
"who."

Seen in the light of such a struggle for assertion of
legitimate authority, we may point to this fact: were explicit
and de jure control of the state given to those who actually
made the decisions to which we have referred, this country
would exist in a political system best described as military
fascism. The principal obstacle to the achievement of such
a state seems to be the attacks on ^{the irresponsible exercise of} state power made by those,
such as the scientists, who claimed the rights which the
American dream allots to each of us. The thing which acts
to remove that obstacle from the path of the achievement of
military fascism seems, conversely, to be the alienation from the
process of decision which is increasingly the state of mind
of modern man in capitalist society.

NOTES AND BIBLIOGRAPHY

NOTES

Sources are cited as to author and title only. See bibliography for complete citations.

1. Bertrand de Jouvenel, Sovereignty, p. 4.

"Few and far between are the citizens who, if a decision handed down to them meets with their approval, ask themselves whether the authority from which it comes has not exceeded its competence. Only those who disapprove of it will raise, if they can, the question of competence. In the winter of 1950-51, President Truman, against the wishes of a sector of public opinion, decided to send four troop divisions to Europe. This sector was opposed to the substance of the decision; its tactic was to agitate the question whether the President had the power to do such a thing." (pp. 3-4)

2. Thorstein Veblen, The Theory of Business Enterprise, p. 129.

Veblen says that that the metaphysics of natural right had outlived their ability to describe business relations in a time of the machine process and concentration of capital. A testimony to the continuing validity of Veblen's 1904 observation is given in Thurman Arnold, The Folklore of Capitalism.

3. Bertrand Russell, Mulford Sibley, Nathaniel Peffer, Max Kempelman, C. Hartley Grattan, "Can Foreign Policy Be Democratic?", American Perspective, II (Sept. 1946), 37-39. The symposium was undertaken as a reply to Thomas Bailey, The Man In The Street.

4. Sibley, p. 155.

5. See esp. The Social Psychology of George Herbert Mead,

- ed. and with intro. by Anselm Strauss, pp. 1-43.
6. U.S. Atomic Energy Commission, In the Matter of J. Robert Oppenheimer: Transcript of Hearing Before Personnel Security Board, p. 173.--testimony of General Leslie R. Groves. The transcript will hereinafter be cited simply as Transcript.
 7. Patrick M. S. Blackett, The Military and Political Consequences of Atomic Energy, pp. 70-75.
 8. This question, namely whether or not we shall have democracy (in the sense of popular participation in the decision-making process), may also bear on the question of whether the United States shall be involved in so-called "limited wars." Democratic checks on state power seem now to be the principal thing holding us back from intervening in several places in the world. It is more frightening to see that often this check on state power comes from abroad, from the peoples of other countries. As this is written, some generals in the Pentagon have recently announced support for the idea of paramilitary warfare to protect U.S. interests abroad. As I.F. Stone remarked, revolutionary methods without revolutionary program have a name in the twentieth century--fascism.
 9. William Laurence, Dawn Over Zetor, pp. 31-33.
 10. Ibid., pp. 84-86
 11. Quoted in Robert E. Sherwood, Roosevelt and Hopkins.
 12. Laurence, pp. 91-92.
 13. Dr. Vannevar Bush, Transcript, p. 560.
 14. Sherwood, pp. 154-56.
 15. Transcript, p. 560.

16. Laurence, p. 63. This is an estimate, based on figures which Laurence obtained from Ernest O. Lawrence. I have had to augment Laurence's estimate with one of my own in order to bring it up to the date mentioned in the text.
17. Laurence, pp. 91-92.
18. General Groves, Transcript, pp. 163-164.
19. Hans Bethe, Transcript, p. 325.
20. Transcript, p. 12. This was Dr. Oppenheimer's ^{reply} to General Nichols' letter informing him of his clearance suspension.
21. J. Robert Oppenheimer, Transcript, p. 30. "My directive. . . was to lose no day in preparing an atomic bomb. The definition of an atomic bomb was that it should be at least equal to 1000 tons of TNT in explosive force."
22. Oppenheimer, Transcript, p. 12.
23. Ibid., p. 12.
24. Enrico Fermi, Transcript, pp. 397-398.
25. Oppenheimer, Transcript, p. 13.
26. The Bulletin of the Atomic Scientists, IX (1953), p. 11.
27. Heavy water is made up from deuterium or tritium, the heavy isotopes of hydrogen, and oxygen. It occurs naturally in water at the rate of one molecule in 4600. Simple hydrogen has one proton in the nucleus and one electron. Deuterium and tritium have a neutron and two neutrons, respectively, in addition to the single proton. These isotopes are also used in the thermonuclear fusion of hydrogen.
28. Laurence, p. 106.
29. Ibid., pp. 110-111.

30. Ibid., p. 113
31. Groves, Transcript, p. 173.
32. Peer de Silva, Transcript, p. 274.
33. Colonel John Lansdale, Transcript, p. 260.
34. Groves, Transcript, p. 170.
35. Ibid., p. 177. For additional evidence, see the story of the Hess flight in Sherwood, p. 390.
36. Groves, Transcript, p. 175.
37. There are a number of good official histories. One of the best is E. B. Potter, The United States and World Sea Power, chapters 34-39.
38. Paul Sweezy, The Theory of Capitalist Development, p. 324.
39. Paul Samuelson, Economics, p. 204.
40. Latin America, our own bailiwick for exploitation and market for many of our goods, was untouched.
41. John McCloy, Transcript, p. 736.
42. Potter, p. 864 and 868(map).
43. Ibid., p. 884.
44. Henry L. Stimson, "The Decision to Use the Atomic Bomb," Harper's, No. 1173 (February 1947).
45. Committee members were:
 - a. James F. Byrnes.
 - b. Ralph S. Bard, Under-Secretary of the Navy, who later dissented from recommendation number three.
 - c. William F. Clayton, Asst. Secretary of State.
 - d. Vannevar Bush.
 - e. Karl Compton, President of M.I.T.
 - f. James B. Conant, Chrmn. of the National Defense Research Council and President of Harvard.
46. Potter, pp. 883-884.

47. Cf. Blackett, pp. 118-125.
48. Ibid., p. 126.
49. The Bulletin of the Atomic Scientists, V (Feb. 1949), 40.
50. Sherwood, p. 883.
51. Carl Marzani, We Can Be Friends, p. 187.
52. Ibid., p. 187.
53. The Private Papers of Senator Vandenberg, ed. Arthur Vandenberg, Jr., p. 176.
54. The Bulletin of the Atomic Scientists, VIII (April 1952), p. 126.
55. Stimson, loc. cit. Panel members were Drs. Oppenheimer, Karl Compton, Fermi, and Lawrence.
56. Nation, (December 22, 1945), pp. 718-719.
57. Medford Evans, The Secret War for the A-Bomb, p. 119.
58. The report was published in The Bulletin of the Atomic Scientists and in Minutes to Midnight by Eugene Rabinowitch.
59. Alice Kimball Smith, "The Recognition of Responsibility," New University Thought, I (Autumn 1960), p. 51.
60. There is little evidence that the Los Alamos scientists did anything to stop the use of the bomb. Oppenheimer would have had influence against such a movement, of course. However, Hans Bethe, head of the Theoretical Division, testified that there was "concern" at Los Alamos--concern which began shortly before the end of the war. (Transcript, p. 325.)
61. Smith, p. 51-52.
62. Blackett, p. 127.
63. Ibid., p. 128
64. One World Or None, ed. Dexter Masters and Katherine Way, p. 49.

65. The Bulletin of the Atomic Scientists, IX, (1953), p. 7.
66. Stimson, loc. cit.
67. See Oppenheimer statement above.
68. Bethe, Transcript, p. 326 and p. 332.
Evans, pp. 185-195.
Blackett, pp. 110-111.
69. New York Times, October 14, 1945.
70. Ibid.; this was the Oppenheimer testimony before the
Kilgore-Magnuson Committee on the National Science Found-
ation.
71. Oppenheimer, Transcript, p. 35.
72. Quoted in Evans, op. cit., pp. 187-188.
73. Oppenheimer, Transcript, p. 35.
74. Vandenberg, ch. 14.
75. Ibid., pp. 222-223.
76. Ibid., pp. 228-229.
77. Smith, p. 53.
78. Oppenheimer, Transcript, p. 33.
79. Ibid., p. 35.
80. Time, April 21, 1952.
81. Smith, pp. 53-54.
82. Oppenheimer, writing in Atoms For Power, p. 47.
83. The Bulletin of the Atomic Scientists, V (1949), pp. 112-113.
84. Oppenheimer, writing in One World Or None, pp. 23-24.
85. Cf. William Reuben, The Atom Spy Hoax.
86. The plan is cited in full in the bibliography.
87. Oppenheimer, in Atoms For Power, pp. 21-22.
88. U.S. Department of State, A Report on the International
Control of Atomic Energy.

89. Blackett, pp. 152-153.
90. Article in the Dartmouth College Alumni Magazine, February 1948. Quoted in Marzani, p. 56.
91. Speech in the Senate, 2 April 1947. Quoted in Evans, p. 210-211.
92. David Lilienthal, Transcript, p. 373.
93. Lilienthal, Transcript, p. 373. Oppenheimer, Transcript, pp. 37-39.
94. Lilienthal, Transcript, pp. 373-374.
95. Oppenheimer, Transcript, pp. 38-39. Unless otherwise noted, the following information on the drafting of the report is found on the pages cited.
96. The Bulletin of the Atomic Scientists, August 1948, cited in Blackett, pp. 143-144.
97. Cf. Marzani. Also The Forrestal Diaries, ed. Walter Millis; The Private Papers of Senator Vandenberg.
98. The Bulletin of the Atomic Scientists, VI (1950), p. 58.
99. Cf. Charles F. Snow, Science and Government.
100. Unpub. speech by J. Robert Oppenheimer at the Weizmann Institute Dinner, December 1959. Recording courtesy radio station KPFA.
101. In the post-war years, scientists capitalized this word (Bomb). This undoubtedly has some significance to those who have adopted a Freudian conceptual system.
102. Cf. The Bulletin of the Atomic Scientists, for relevant years. Also see One World Or None. For the view that the scientists are agents of the international Communist conspiracy, cf. Evans, The Secret War for the A-bomb.
103. Oppenheimer, in Atoms For Power, p. 21.

104. paraphrase of a Truman statement in New York Times,
October 8, 1945.
105. Social Science Research Council, Public Reaction to the Atomic Bomb and World Affairs, p. 113.
106. The Bulletin of the Atomic Scientists, V (Feb. 1949), p. 37.
107. U.S. Congress, Joint Committee On Atomic Energy, Investigation Into the United States Atomic Energy Project,
cited in Evans, and in Stewart and Joseph Alsop, We Accuse!
108. C. P. Snow, p. 76.
109. The Bulletin of the Atomic Scientists, V, (June-July 1949),
pp. 177-178.
110. Ibid., p. 177.
111. The Bulletin of the Atomic Scientists, V (Oct. 1949), p. 261.
112. Ibid., p. 261
113. Ibid., p. 265
114. Ibid., p. 269
115. ^{James S.}Allen, Atomic Imperialism, p. 9.
116. Bethe, Transcript, p. 333.
117. Oppenheimer, Transcript, p. 77.
118. This account is taken from the testimony in the transcript,
espec. that of Fermi, Rabi, Conant, Alvarez, and Teller.
119. Oppenheimer, Transcript, p. 77.
120. Ibid., pp. 79-81.
121. Ibid., pp. 79-80.
122. Ibid., p. 80.
123. General Roscoe C. Wilson, Transcript, p. 682. General
Wilson was ordered to testify against Oppenheimer at the
hearing. The order came from the Joint Chiefs of Staff.
124. Edward Teller, Transcript, pp. 717-718.

125. Wilson, Transcript, p. 682.
126. Ibid., p. 682.
127. Ibid., p. 682. General Wilson was at the hearing, and made the notes from which he quoted.
128. Oppenheimer, Transcript, p. 81.
129. This chronology is from Wilson's testimony, unless otherwise noted.
130. George F. Kennan, Transcript, p. 352-372.
131. The Bulletin of the Atomic Scientists, VI (March 1950), p. 66.
132. Ibid., p. 66.
133. Ibid., p. 71-72.
134. Ibid., p. 71-75.
135. Snow, pp. 82-83.
136. Ibid., p. 80.
137. Gaetano Mosca, The Ruling Class, p. 298.
138. The Bulletin of the Atomic Scientists, VI (March 1950), p. 66. (remark made by Oppenheimer on a radio program of 12 February 1950.)
139. Cf. Muffow, See It Now, p. 114.
140. See esp. the issues of The Bulletin of the Atomic Scientists cited above and the Alsop book.
141. The Bulletin of the Atomic Scientists, X (May 1954), pp. 248-254.
142. The Bulletin of the Atomic Scientists, X, (Sept. 1954), p. 274.
143. Ibid., pp. 275-277.
144. Alsop, op. cit.
145. The Bulletin of the Atomic Scientists, X (Sept. 1954), p. 280.

146. Ibid., p. 269.

BIBLIOGRAPHY OF WORKS CONSULTED

- Allen, James S. Atomic Imperialism: The State, Monopoly, and the Bomb. New York, 1952.
- American Assembly; Atoms For Power. New York, 1957. The book contains articles by Dr. Oppenheimer, Oliver Townsend.
- Alsop, Joseph and Stewart Alsop. We Accuse! New York, 1954.
- Aptheker, Herbert. The World of C. Wright Mills. New York, 1960.
- Arnold, Thurman. The Folklore of Capitalism. New Haven, 1937.
- Blackett, Patrick M. S. The Military and Political Consequences of Atomic Energy. London, 1948.
- The Bulletin of the Atomic Scientists, vols. II, IV, V, VI, VIII, IX, X.
- Chevalier, Haakon. The Man Who Would Be God. New York, 1959.
- de Jouvenel, Bertrand, Sovereignty. trans. J. F. Huntington. Chicago, 1957.
- Evans, Medford. The Secret War For the A-Bomb. Chicago, 1953.
Mr. Evans is rather a paranoid about Communists.
- Kemler, Edgar. The Deflation of American Ideals. Washington, D.C., 1941.
- Laurance, William J. Dawn Over Zero. New York, 1946. This book was commissioned by General Groves.
- Marzani, Carl. We Can Be Friends. New York, 1952.
- Mead, George Herbert. The Social Psychology of George Herbert

Mead. ed. Anselm Strauss. Chicago, 1956.

Michels, Robert. Political Parties. trans. Eden and Cedar Paul. New York, 1959.

Mills, C. Wright. The Power Elite. New York, 1959.

Mosca, Gaetano. The Ruling Class. trans. Arthur Livingston. New York, 1939.

Murrow, Edward and Fred W. Friendly. See It Now. New York, 1955.

The New York Times. October 8, 1945 and October 14, 1945.

Northern California Association of Scientists for Atomic Education. Letter. vol. I.

Oppenheimer, J. Robert, et al. One World Or None. ed. Dexter Masters and Katherine Way. New York, 1946.
This was the F.A.S. symposium on the atomic bomb.

_____. The Open Mind. New York, 1955.

_____. Science and the Common Understanding. New York, 1954.

Pareto, Vilfredo. The Mind and Society. 4 vols. New York, 1935.

Potter, E. B. The United States and World Sea Power. Englewood Cliffs, N. J., 1955.

Reuben, William. The Atom Spy Hoax. New York, 1955.

Riesman, David. Selected Essays from Individualism Reconsidered. New York, 1954.

Russell, Bertrand, et al. "Can Foreign Policy Be Democratic?"
American Perspective, II (Sept. 1948), 147-181.

Samuelson, Paul A. Economics. New York, 1958.

Shepley, James R. and Clay Balair, Jr. The Hydrogen Bomb.
New York, 1954. No sources, hence not verifiable.

Sherwood, Robert E. Roosevelt and Hopkins. New York, 1948.

Smith, Alice Kimball. "The Recognition of Responsibility,"
New University Thought, I (Autumn 1960), pp. 48-59.

Snow, Sir Charles Percy. Science and Government. Cambridge,
Mass., 1961.

Social Science Research Council. Public Reaction to the
Atomic Bomb and World Affairs. New York, 1947.

Stimson, Henry L. "The Decision to Use the Atomic Bomb,"
Harper's, No. 1173 (Feb. 1947)

Sweezy, Paul. The Theory of Capitalist Development. New York,
1956 ed.

Time magazine. April 21, 1952

United States Atomic Energy Commission. In the Matter of J.
Robert Oppenheimer: Transcript of Hearing Before Personnel
Security Board. Washington, 1954

United States Department of State, A KINK Report on the Inter-
national Control of Atomic Energy. Washington, 1946.

Vandenberg, Arthur. The Private Papers of Senator Vandenberg.
ed. Arthur Vandenberg, Jr. Boston, 1952.

Veblen, Thorstein. The Theory of the Business Enterprise.
New York, 1958.

Weber, Max. From Max Weber: Essays In Sociology.ed. Hans
H. Gerth and C. Wright Mills. New York, 1958.

* * *