

INDUSTRIAL PREPAREDNESS

19 February 1954

1417

CONTENTS

	<u>Page</u>
INTRODUCTION--Colonel Bruce D. Rindlaub, USA Vice Deputy Commandant, ICAF.....	1
SPEAKER--Lieutenant General Leslie R. Groves, USA (Ret), Vice President in charge of Research Division, Remington Rand Corporation.....	1
GENERAL DISCUSSION.....	17

NOTICE: This is a copy of material presented to the resident students at the Industrial College of the Armed Forces. It is furnished for official use only in connection with studies now being performed by the user. It is not for general publication. It may not be released to other persons, quoted or extracted for publication or otherwise copied or distributed without specific permission from the author and the Commandant, ICAF, in each case.

Publication No. L54-97

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

Lieutenant General Leslie R. Groves, USA (Ret), Vice President in charge of the Research Division of Remington Rand, was born in Albany, New York, 17 August 1896. Following graduation from the United States Military Academy he was appointed second lieutenant, Corps of Engineers, 1 November 1918. He is a graduate of the basic and civil engineering courses at the Engineer's School, the Command and General Staff School, and the Army War College. From November 1940 to January 1942 he was in charge of operations in the Construction Division, Office of the Quartermaster General, after which he was assigned as deputy chief of the Construction Division, Office of the Chief of Engineers. On 17 September 1942 General Groves was placed in charge of the development of the atomic bomb. As head of the Manhattan Project he was responsible for all phases of the Nation's atomic energy program. Under his command the Manhattan Project acquired land and constructed the large-scale, precision-built plants which produced fissionable material at Hanford, Washington, and at Oak Ridge, Tennessee, and the Los Alamos Plant where the atomic bomb was designed and assembled, and in charge of the military planning and preparations which led to the dropping of the atomic bombs on Japan. On 6 December 1945 he was appointed assistant to the Chief of Engineers for a four-year term and continued to serve as head of the Manhattan Project until 1 January 1947, when all domestic atomic matters were transferred to the cognizance of the Atomic Energy Commission under the terms of the Atomic Energy Act of 1946. He became a member of the Military Liaison Committee to the Atomic Energy Commission on 31 January 1947. This committee is a joint organization which consults with the Atomic Energy Commission on all activities relating to the military application of atomic energy. In July 1947 Major General Groves became Commanding General of the Armed Forces Special Weapons Project. He was advanced to the rank of lieutenant general in January 1948. On 1 March 1948 he was retired from active military service, and in July 1948 he was appointed to his present position.

INDUSTRIAL PREPAREDNESS

19 February 1954

COLONEL RINDLAUB: The major part of our course here at the Industrial College is the study of economic mobilization. I think you will all agree that the success of any future economic mobilization is going to be largely dependent on the state of the industrial preparedness of this country.

Our speaker this morning has agreed to discuss this subject as he sees it, from the point of view of an industrialist--what has been done, what can be done, and what may be done in the future to mobilize industry and prepare it for a future war in this atomic age.

When you think of the names of all the leaders in World War II, Eisenhower, MacArthur, King, Vandenburg, Bradley, you can't help but join with them the name of Leslie Groves, due to his leadership in the development of the atomic bomb. It was inevitable, due to this achievement, that after his retirement from the military service he would be sought after by some corporation to take charge of its research and development. So it is that this morning General Groves comes to us as Vice President and a member of the board of the Remington Rand Corporation.

General Groves, it is an honor for me to welcome you to this platform.

GENERAL GROVES: Admiral, gentlemen: It is a pleasure for me to be on this platform also. I can still remember the first time I stood at this point. I was the first member of my class at the War College to have to stand up here, and it was not a particularly pleasant experience. I made some very violent statements about what we should do with respect to motor transport problems. When I finished, the Commandant, General De Witt, got up and said he was very glad to have heard me speak, but he also wanted the class to know that he disagreed with everything that I said. The Admiral would be probably too polite to say so today, but tomorrow or next week he may tell you the same thing.

My last appearance before your predecessor school was during the early thirties when I spoke about the problems facing me as the officer in charge of Procurement Planning in the Office of the Chief of Engineers.

For historical purposes I should like to state that the industrial mobilization planning at that time was sound on the lower level, and my level was about as far down in military rank as you can get. In those days lieutenants used to address the Industrial College. I am glad to see that the rank has gone up a little, in that, as I understand your present status in the Armed Forces, I don't know whether you would listen to what a lieutenant had to say.

As I look back, however, I realize that we did a good job. Unfortunately, the wisdom displayed on the working levels was not appreciated on the upper levels. Positive provisions for the industrial mobilization of our country in the event of war were definitely not put into effect by those in top authority, including the President, the Secretaries of War, and the Assistant Secretaries of War, who were directly responsible. The Planning staffs were small. In the Office of the Chief of Engineers I spent about 5 percent of my time on procurement planning. I had one full-time assistant, a master sergeant. Other services had larger establishments, but they were still small. We all had a limited number of officers in the field, but they did little beyond surveying facilities and attempting to get acquainted with industrialists in the vicinity. Nevertheless, things were accomplished; I would like to tell you a few of those things.

I should like you to remember when you, as all good officers do, complain inwardly, and undoubtedly outwardly among yourselves, about the situation, that no matter how many blocks are thrown from above, you can still make major contributions to the future welfare of our country.

What were we able to accomplish? Within the Engineers I will name three items. The first one was that we managed to get, under a PWA contract for the procurement of searchlights, a provision that the contractor would prepare a complete plan for the production of such equipment in time of war, in both his own plant and the plants of others. I did not believe then, nor do I believe today, in the concentration of military supply in the hands of one manufacturer and one plant. This plan included all the necessary drawings and instructions for manufacture. It was prepared in three complete copies, each of which was to be kept in a different location, so that, in the event of accident, sabotage, or enemy attack, we would not be left without a copy. Please remember that this was in the years when very few of our military leaders thought we would ever be subject to bombing in this country. A provision incorporating that in the contract I believe was unusual.

It was the only one that I know of at that time, and there was a great deal of question as to whether it could be incorporated in this one. It was approved by the officer who had to approve such things for the Chief of Engineers, on the grounds that it would be splendid if we could get away with it, but he didn't think we could. Well, we did, and we had the plan.

It was prepared by the Sperry Company and gave it a tremendous foundation for all of its wartime production plans not only in this field but in all fields. It introduced them to the necessity for subcontracting of parts and subassemblies.

Another instance where we went beyond the paper stage was in the development of a method for the rapid production of searchlight mirrors in time of war. This eliminated any possibility of that being a bottleneck; it had been a bottleneck in all the planning prior to that time.

Another one was the substitution of a nitro starch explosive for TNT, for use in engineer demolitions. This resulted from a conversation with an officer in the Ordnance Department who told me that in his plans the first thing he would do in the event of war was to recommend to the Secretary of War that all TNT in the hands of the Engineers be turned over to the Ordnance Department. This was on the theory that there would be a serious shortage of TNT. As you know, the development of superior methods of producing toluene prevented that shortage from coming to pass.

I recall the past for the purpose of lending you encouragement if the time comes when you feel that the importance of industrial mobilization planning is not being appreciated. After all, we do know that it is not and never has been appreciated, and I doubt that it ever will be, despite the complete public recognition of its need by our political, military, and industrial leaders ever since Mr. Baruch first started pressing the subject in 1918.

It is true that we who have gone before you had certain advantages which you don't have today. Although we had little, if any, money and we were confronted with the national feeling that war would never come, we did not have a Pentagon chock full of persons, both civilian and military, with authority to interfere with everything we did, but with no responsibility for the results or the lack of them. We had interference, of course, and there always will be interference, whether the organization

is military or civilian, Government or private. Fortunately, the potential interferences were limited in number and because of this were unable to hide, as they can today, behind the foggy, impenetrable curtain of "higher authority." We did not have to contend with the present-day fallacious theory that the man in civilian clothes is much superior in intelligence and capacity to the man in uniform.

This fallacy, in my opinion, has been fed by several sources. Among these sources have been the ambitions of certain men who were not in uniform during the last war or, if in uniform, who lacked the capacity to achieve positions of responsibility. These sources have also included men willing to do almost anything to gain greater power or to achieve greater financial rewards. I would like to tell you, as I have told audiences, both military and civilian, many times before, that I have never encountered anywhere any body of men superior, individually or as a group, to that of our Regular Officers' Corps in the Armed Forces.

I would like to tell you one experience indicating what I mean by this civilian-control fallacy. During the hearings on atomic legislation in 1946, the late Senator McMahon, who was Chairman of the Committee, made a most astounding statement, in commenting on a reply of mine to a question by him as to what men I thought would be capable of being commissioners or general managers of the Atomic Energy Commission, which was then under consideration. I had named as one of the outstanding possibilities, General Thomas Farrell. He had been a Regular officer in his youth, had been in civil engineering practice in the State of New York for some 20 years, and then in 1941 had come back into the Army to help us throughout the war. Senator McMahon stated that he personally thought it would be very unwise to have any man who was a Regular officer on such an assignment; he went further and said that he felt it would be unwise to have any man who had ever been a Regular officer, or any man who had ever worn the uniform. As you know, Senator McMahon was in Connecticut and then in Washington during the war years.

That is the fundamental basis of the tremendous agitation for civilian control. That is how it started, and any of us who served in Washington during that period I think are fully aware of it.

Now, as to atomic affairs--we are constantly hearing speeches and reading articles indicating that the dearth of information on atomic affairs is preventing us from making intelligent decisions. Much has

been made of the fact that many of our national leaders have not been made fully aware of all of the technical details of atomic energy. I would like to say that I would like to see any of you try to explain any of those details to many of the national leaders I used to try to explain them to. I hope you will get more out of what I have to say this morning than they got out of those discussions.

Secretary Dulles recently referred to this in a speech before the American Bar Association in which he was discussing the adoption of the United Nations charter. He said:

"One inadequacy sprang from ignorance. When we were in San Francisco in the spring of 1945, none of us knew of the atomic bomb which was to fall on Hiroshima on August 6, 1945. The charter is thus a preatomic-age charter. In this sense it was obsolete before it actually came into force. As one who was at San Francisco, I can say with confidence that, if the delegates there had known that the mysterious and immeasurable power of the atom would be available as a means of mass destruction, the provisions of the charter dealing with disarmament and the regulation of armaments would have been far more emphatic and realistic."

I was not responsible for the decision not to inform the United States delegation about atomic matters. As far as I can recall, I was never asked for any advice on the subject. If I had been I would have recommended that the delegation not be informed. And at that time I did not know of Alger Hiss, of his now disclosed background and philosophy, or of his great influence on many vital State Department decisions. I knew that several high-ranking officials in the State Department, including Mr. Stettinius, the then Secretary of State and the head of our delegation to the United Nations conference, had been told of the atomic possibilities. I was certain that a number of the Presidential advisers had known something of it. I did not know until Mr. Hull published his memoirs after the war that Mr. Roosevelt had kept knowledge of our project from Mr. Hull supposedly, as Mr. Hull said in his memoirs, because FDR did not trust the State Department. If you wish to get the exact quotation, you can find it in Hull's memoirs, and I think it is even a little more vicious than what I have said here.

I was, as were many others in Washington and elsewhere, fully aware of the very Alice-in-Wonderland viewpoint of many of our high officials and their advisers. One has only to go back to the newspapers

of that era to realize that this starry-eyed viewpoint of the Russian character and motives was not limited to high officials. It was a doctrine and propaganda that had been foisted on this country for years. It went back even before the recognition of Russia by President Roosevelt as soon as he took office. That was in September 1934. You may well ask why so many of our leaders were so taken in by the Russians, but at the same time I believe you should also ask what was the matter with the opinion-forming mediums of this country--the press, the magazines, and the radio; and what was the matter with the American people? Why did they not see through this propaganda? The doctrine has been preached for many years that the German people are unusually susceptible to government propaganda. Speaking as one who, so far as he knows, has no German ancestry, I ask if we Americans are really so superior after all in this regard.

If any of you say that you were just boys when all this was going on, I ask if you are really any smarter today. Do you form your own opinions on solid thinking or on what some writer or ambitious politician says? Think of the columns you read. Think of the newspapers you read. Answer the question to yourselves.

Sometimes I wonder if, in our great rush to achieve the modern way of life, we have not lost the common horse sense of which our forefathers were so proud. This alleged need for detailed atomic information in order to arrive at sound decisions in this problem is after all rather silly. It came originally from those who sympathized with Russia and felt that it should have complete information on the subject.

To refresh your memories, I might add that Mr. Ickes, when he was Secretary of the Interior, testified before the Senate Committee that that was his belief.

All the information that is needed and all that has been needed for intelligent public leaders can be expressed in less than a page, and this information has been known to everyone ever since August 1945.

This information is: Atomic bombs are feasible. They can be produced. They can be transported and delivered on a target. They can be delivered by an airplane or by a rocket. They can be brought into harbors by surface vessels or submarines. Their parts can be introduced into our country surreptitiously and then assembled in this country. These parts cannot be detected by a Geiger counter; they can be detected only by close examination of all incoming freight and baggage. The parts can be small

enough to be carried in suitcases. A single bomb can destroy square miles of buildings and can kill or injure people by the tens of thousands. Our stock of bombs is adequate and is constantly increasing. The Russians are producing bombs in unknown quantities. The only sound defensive measures are: to avoid war with an enemy capable of waging atomic war; to destroy his bomb-carrying vehicles before they reach our borders; to disperse our people and our possessions so that catastrophic results are avoided.

That is all you have to know to handle everything involved in top-level diplomatic decisions. It doesn't take much effort to find it out. Shortly after the bomb hit Hiroshima, the Japanese Government sent a major down there to see what had happened. All they knew was that all communication was lost and that nearby bases and cities had reported that something terrible had happened to Hiroshima. The major went down by airplane and landed, I believe, at a nearby naval base, about 20 miles away. He got a car and went up there and made his report. The Japanese Government then got one or two of its most distinguished scientists. In the meantime, we had issued our statement as to what had happened. As you recall, it was the first time in the Japanese war that we told the Japanese what had happened instead of the Japanese telling us. They called in a very distinguished physicist and told him to read the statement that had come in over the air. They said, "Here is the story on what happened at Hiroshima. What can we do? How long will it take you to develop a bomb so that we can hit back at them?" He said, "That is impossible. It would take a number of years. It might take an indefinite number of years, even if we had the uranium, and we don't have it." The next question was, "How can you stop the Americans from dropping the bombs?" His answer was, very simple, "Shoot down all the American planes before they fly over Japan." He didn't have to have any special knowledge in order to make that decision. Although he didn't have to know what an isotope was; he didn't have to know what an atom was; he didn't have to know the difference between a neutron and a proton. And I can tell you it doesn't make the slightest bit of difference to any of you to know that.

If you confine yourselves to what I told you in less than one typewritten page, you know all you have to know. There are many specialized phases of the problem, but none of them concerns anyone in the military, excepting the damage that can be done by the bombs. As you know, the bombs dropped over Japan were equivalent in power to 20,000 tons of

TNT. The bombs talked about today run from 50,000 to 100,000 and for the hydrogen bomb up to a million tons. I believe the problem you are getting is based on 50,000-ton bombs. At Hiroshima, the destruction covered an area with a diameter of three miles. That was in absolutely flat country--in other words, where the damage could run out. It was one of the reasons Hiroshima was selected as a target. We wanted to see the effect where there were no interfering elements such as we had at Nagasaki, where the explosion was over a narrow valley.

The 50,000-capacity bomb can be compared to the 15,000-capacity bomb as to damage done if you apply the effects of the cube root law for distance. Your area covered will of course vary as the square of the distance. It is simple to calculate. If you compare the difference between the 50,000-ton bomb in damage and the 15,000-ton bomb, you find that the diameter of destruction will go from three miles to about four and a half miles. Remember this--that nobody knows just what damage will be done at a distance. It depends on the altitude at which the bomb is exploded and on the terrain, and on the physical facilities which comprise the target.

If Russia should drop as many bombs as they are supposed to have dropped in the problem you are faced with, I think some of them would have gone off at the wrong altitude. You should consider that when you come to your problem.

In a recently published novel Philip Wylie premises a hydrogen bomb attack on the United States in which 20 million Americans are killed. The District of Columbia is destroyed and Manhattan and the adjacent territory is driven under the sea. It is quite a terrible picture and while it is slightly exaggerated it does give some idea as to what might happen. This is particularly true with respect to the number of casualties that could result.

There have been many papers written and speeches made on our past failures in the field of industrial mobilization planning for World War II. The trouble was not with the planning, which was generally sound, but with the implementation of that planning by higher authority. Political decisions favored other Federal activities.

There was one exception to this sound planning. I would like to digress a moment to talk about that. It was not generally thought of as

industrial planning; yet the failure to plan properly had a serious impact on the industrial effort. I refer to military construction of all kinds. For the Army this included camps, airfields, ports, docks, railroad regulating stations, warehouses, and plants for the production of military supplies and equipment. Because of poor planning mobilization was badly hampered and construction had to be unduly expedited. This had a distinct effect upon the economy both of the war years and later. The work cost more than it should have because we had to buy time. Adequate time could not be allowed for engineering. Even the fundamental planning was lacking. For example, the philosophy with regard to depots to serve the Pacific Coast had been centralized warehousing in the vicinity of Salt Lake, Utah, with its rail communication to Los Angeles, San Francisco, Portland, and Seattle. The doctrine was that the enemy would land on the Pacific Coast and that the basic warehouses should not be too far forward. Even for this the thinking was fallacious and indicated a serious disregard of American distances and geography. Apparently, little thought had been given to just how we could supply forces in the Pacific. For any water shipments port facilities on the Pacific Coast were sadly lacking. In the late summer of 1940 the Army still had no port facilities in Seattle and only the Fort Mason docks in San Francisco, and there was no thought of doing anything about it.

The situation was saved, and I want to say this, because I want you to remember this when the lesson comes. It was saved due to the foresight and insistence of a single man, operating against the decided opposition--and I mean decided--of the highest military authorities in the Army. He forced the provision of port facilities and he forced the provision of adequate warehousing close to those facilities. He did it despite the opposition of everyone involved in it on the General Staff. Just to make the record clear, that man was General E. B. Gregory, the Quartermaster General of that time.

On construction I would like to point out what the effect of this was on the country industrially. The number of men employed on Army construction reached a peak of just short of a million. That was in September 1942, the month I was relieved from construction operations to head the atomic bomb work. The amount of construction built a month was 700 million dollars' worth. You can't do that much work even in this country without interfering with industrial mobilization.

A failure to anticipate what was going to happen in the amount of construction I think was a serious error. There was another one. That was that the military theory involved in the handling of construction was defective. I refer to the theory, which was almost doctrine, of decentralizing complete authority to subordinate commanders. It is a good doctrine only if the problems faced come within the scope of the subordinate commanders' experience and capacities. Otherwise it is not only absurd but of the utmost danger to our national welfare. With the advance in technical and scientific applications to military operations, this doctrine of decentralization demands far greater capacity on the part of our commanders, both in the theater of operations and in the Zone of Interior. Commanders simply cannot place their very existence in the hands of their so-called technical advisers on the theory that, "This is too scientific--I haven't studied differential calculus--I haven't studied differential equations--I haven't studied nuclear physics--I just have to do what the doctor tells me." I have been impressed since the end of the war with the tremendous respect paid by military commanders to anyone with a Ph.D degree, unless the man who holds that degree happens to be a Regular officer. I don't hold one myself; there are no sour grapes in my remarks.

There's another thing which I think has not been emphasized enough. I don't know whether you have discussed it or not. It is the effect in this country of the softening influences of the last 40 years which have been proceeding at such a particularly merry clip in the last 10 years. Today's Americans as a people are simply not used to hard physical labor or discomfort. We all, with few exceptions, lead comfortable, luxurious lives. Even the poorest insist on far above subsistence standards. There are few governmental relief agencies that have not suffered from time to time from unfavorable publicity resulting from their clients coming to collect their relief checks in taxicabs. In time of war the result of this will be that a certain percentage of our people will not have the will to win, and particularly the will to keep on fighting and struggling if the going gets tough. That has been increasingly evident for years. Let us make no bones about it. There have always been people who were unwilling to undergo hardships. George Washington faced that problem in the War of the American Revolution. Our leaders faced it in the earliest colonies in our country. Even Captain John Smith had it. Every leader has faced it. Every leader of the future will face it. We have the problem dramatized for us today in the court of inquiry that is sitting in the Marine Corps right now.

We all know that no organization is perfect. We all know that no body of soldiers ever existed that was 100 percent top notch in every way, whether it be in determination to win, patriotism, or the ability to withstand discouragement. The American people have not been really tested against discouragement since 1863 and 1864. We had the test then, on both sides of the Mason-Dixon line.

We do know, and we should not forget, that there has been a great change in American temperament, partly because of the luxurious living, partly because of the influx of certain nationalities into our stock. They do not have the Anglo-Saxon determination to last out under adverse conditions. We don't know what will happen if we are attacked by an atomic bomb. One encouraging factor is that the more it is talked about, the less frightening it will be when it actually hits--unless it happens to hit where you personally happen to be. Then you won't have to worry about it anyway.

That reminds me of the discussion before the Senate Committee when a Senator asked me certain questions about the superbomb. He said he had been told that a superbomb might ignite the atmosphere. If it did set off the atmosphere, it would destroy the United States and it might destroy the world. He asked, "Do you think that could happen?" I said, "No, I don't think it could happen; I don't think the power is there." He said, "Well, now, General, what if you are wrong?" I said, "Well, Senator, if I am wrong I won't have to explain it to your committee, and that will be a great relief."

Actually, before we fired the first bomb at Alamogordo, some of my scientists suddenly realized at the last minute that there was a possibility of igniting the atmosphere. Remember, in those days we didn't know anything about bombs of atomic energy. That is one reason why a simple Army officer was able to get along and make the decisions that had to be made, not only on normal matters, but on scientific matters of the highest degree. I was just a better guesser than some of the scientific people. I am sure if they had been in the Army in days gone by they would have been very profitable companions to have in any poker game. Some of them just didn't guess right. Some of us were able to guess a little bit better.

I would like to tell you a little about what happened in Japan, because there has been so much propaganda to the effect that the Japanese bombing was unwise.

At Hiroshima we didn't go out to kill civilians. We aimed at destroying that city as a key city in the Japanese defense of the Island of Kyushu. There were 25,000 Japanese troops there. It was the headquarters of a vital defense area. Of that 25,000 troops, 15,000 were killed, 5,000 were wounded, and 5,000 escaped relatively unharmed. I think these were men who were not on duty and were not where they should have been. That bomb was centered directly on that Japanese headquarters. The damage done was complete to everything above the surface. No damage was done to roads or bridges. They were all of the small type you see in normal highways. Railroad tracks were not damaged; but switch stands were knocked down.

At Nagasaki the two important war factories were completely put out of commission. These factories were three miles apart. If they had been any further apart we would have aimed for a direct hit on one of them, for it would not have been possible, with a single bomb of the type that we had then, to destroy both. My opinion, however, is that atomic attacks must have very intelligent control. If they are wisely made, they will be aimed at the destruction of industrial facilities and not at the destruction of people. People can be replaced. Even military units can be replaced. We all know about them, although not as much as we should, because, for political reasons we have never been willing to face up to the fact that certain divisions in World War I and in World War II just evaporated. It has happened before; it can happen again. We do not talk about that, because it would affect the political careers of certain important political leaders of the past, and maybe of the present, too--but particularly of the past. I shall advise you to just look into your history of World War I before it began to be doctored so completely, and I think you will find it was not just one division, and it was not just negro troops.

That is what we have to fear in atomic war--what will that attack do to us. There is one thing we are depending on today. That is the philosophy of terrible retribution. We will attempt to maintain forces that can get back at the enemy and make it so hard on him that he will limit his attacks on us to incidents. These incidents of course will be as great as he thinks he can get away with. All we have to do is to think of what a typical small boy does to realize just what the Russian Government will do. We can make it much more less apt to happen--an atomic attack on us--if we start to do something about our national philosophy with respect to the concentration of industry. Every time a big manufacturing plant is increased in size, instead of being duplicated

at a distance, we decrease our military strength, because our military strength lies not only in the offensive but in the defensive as well, and defensive strength requires that we must not be vulnerable to a knockout punch.

I think we should remember that even the greatest of defensive fighters sometimes get tagged, and sometimes they are not saved by any count. Who knows how long our count will be if we are tagged? If a lipstick factory is destroyed we will survive, although it may hurt the morale of our feminine population. But if it should be a factory producing vital military equipment or parts for such equipment, we cannot afford to wait for the construction of a new plant, the equipping of the new plant, and the training of the personnel to operate it. There are many vulnerable points in our country. You know them as well as I do.

We hear about civil defense, but we don't do anything about it. I think it is important that everybody engaged in industrial planning, in higher logistics, or in procurement, particularly in time of war, when the chips are down, be fully cognizant at all times of, and never forget for a single minute, the effect of his decisions on the success of commanders in the field. He must realize that his mistakes, including unwise compromises, will be paid for in killed and wounded, in the unnecessary prolonging of war, and in the economic weakening of our country.

Only a few months ago we had a demonstration, in a small way, of the effects of concentration. You may remember that it was Andrew Carnegie who said he did not believe in the old adage, "Don't put all your eggs in one basket" and said, "Put them all in one basket and then watch that basket." As you know, the General Motors Livonia Works was destroyed by fire. If this had been wartime and that plant had produced a vital product, an alert enemy would have taken out the Buick transmission plant, and probably the transmission plants that were making automatic transmissions for Chrysler, and the effects would have been even more marked.

General Motors has pointed with a great deal of just pride in my opinion, at the speed with which it resumed production of automatic transmissions. They would not have found it so easy in time of war, even with a triple A priority, which they might have had on a vital product, if this plant was the only one damaged. And in this instance

General Motors had much more than the equivalent of a triple A priority, with the condition of industry as it happened to be at the moment.

I believe that one of your most essential duties now and in the future is to influence the elimination of bottlenecks, whole or partial, whether these bottlenecks result from peacetime economy, lack of foresight, sabotage, or direct enemy action. We paid some attention to sabotage possibilities in the last war, but very little. We didn't have to. Let us think about some of the other things. Let me illustrate these by showing that this lack of attention to these bottlenecks is not limited to the civilians who control our destiny today.

I don't like to do this, in view of the fact that the Admiral is here, but, in conversations I have had with senior naval officers after the war, I have always been told that there would never be another Pearl Harbor Disaster, particularly one caused by atomic bombs, because they would never assemble a fleet such as we had at Bikini. As you know, that field was destroyed with one atomic bomb. Yet all you have to do is go along our seaboard and see how our reserve ships are tied up to realize what could happen. It is undoubtedly more economical, and a lot easier administratively, to have mothball ships closely grouped by classes. I don't think it is sound if there is any possibility of effective atomic attacks. If such should be directed at our tied-up fleet, it is quite possible that our Navy would be faced with the problem of operating with an unbalanced distribution of the various types of ships. The Navy could not count on a well-balanced fleet. Navy testimony before appropriation committees of the Congress has always been most convincing that each and every type of ship is absolutely vital if disaster is to be avoided. The Navy may be faced with that problem if it continues to tie up its ships as it does today. As I say, you don't have to be a sailor to find out what the situation is. All you have to do is to go around a little and you will know where everything is. All the ships of the same type can go at the same time. It may not hurt too badly if we should lose all battleships; maybe it would not hurt too badly if we should lose all of some other type. All I say is, if we trust in what we have been told, it is not going to be good.

I have been asked how much dispersion I thought was necessary. In my opinion we should not have over 10 percent of any vital military equipment passing through a single plant or collection of plants so that it can be destroyed by a single atomic bomb. If you want to quarrel with 10 percent and say it should be 5 or 20, that's all right. What I

object to is making it so that it is a complete knockout blow with one, two, or three bombs. If we feel that the Russians can reach us, we must consider then how much damage we can take. Can we afford to have all of our jet engine production wiped out? Can we afford to do without automobiles? As to the latter I think we can, for quite a while.

But when it comes to something that is vital for the military, I don't see how we can afford to have it other than widely dispersed. It may cost us more to manufacture. We may not be able to get the lowest bid. We may have to pay a price. I think it would be wise to pay that price. I believe the plants should be scattered throughout the country. I think we can operate them economically. We are smart enough in this country to have the communications that will enable us to operate widely distributed plants. As I say, you can quarrel with the 10 percent, but please don't quarrel with the principle.

Remember also our large electrical generating plants and distribution systems. In the last war we couldn't get the necessary electrical switch gear and the transformers. It was a desperate struggle..

I would like to say again on dispersion, don't forget that an airplane has a number of different vital parts. You don't have to stop the assembly of airplanes. All you have to do is stop one item in them. It may have something to do with a particular model. It may have something to do with the propellers in the case of the propeller-type plane. It may have something to do with one particular item on the instrument board--although I don't know whether we would lose too much if we lost a lot of the instruments. At least they are thought to be important and some of them are important; if we lost them, we would lose much of the efficiency that we have. We are also vulnerable in this country because we have so many people who have always been taken in and who are being taken in by this enemy propaganda.

I think if you will examine what may be our Zone of Interior logistical and procurement operations and their success in the last war, you will find that there were a very few overwhelmingly forceful individuals with plenty of courage and nerve--as well as intelligence and wisdom, and of considerable experience, both in responsibility and in the problems with which they were faced--who made these operations successful.

I believe you have what you call today standard operating procedures here in Washington. A lot of those are the intrigues of Washington. I

suggest that when you have a little time you look into history. I think you will realize then more than now how rare it is for the military men responsible for top-level logistic operations to last out a major war. Modern developments will require much more decisive actions and decisions and will require much more speed of operation. It will require men with much more ability to carry out the responsibilities. I wonder just what is being done in Washington today to make certain that those men with ability will be available when war comes and that they will have that responsibility together with the authority.

If we are going to be successful in logistical operations in the next war, we had better have a few rugged individuals. They won't last after the war is over, excepting by reason of the fear and respect in which they are held. If they remain after the war is over, it will be merely because they choose to remain themselves, and not because it is particularly pleasant. One thing that distresses me is to look at our present military leadership. I was always a great believer in youth. I believe in it today. After all I have been retired six years and I think it was no mistake, from my personal standpoint, to retire. It certainly is a much more pleasant life than existing in Washington as I had to after the war.

But the thing that is required above all else is to think constantly of what will happen when war will come. To me, the only purpose of having officers above a certain age in responsible positions is so that they can train the younger officers and pass on their experience to them. Ten years ago we had certain leadership in our Armed Forces--I am thinking particularly of the Army, where I knew the people much better--and the same people that 10 years ago were in positions of power are still in positions of power. What has happened to the group that should now be coming up? I don't know what will happen, but I can tell you a few things of the past.

What is the purpose of your coming to a military school? To my notion there are three purposes: First, you get it on your record; I don't discount the value of that a minute. Second, you learn the language, and you learn of the men that you are going to deal with if a war should come. Third, you have a rare opportunity to think as to both military matters and everything else, with no conflict with daily routines.

To my notion, our military leaders should be men who are under 55 years of age. Our men of 45 should be getting trained now so that within a few years they can assume those top positions. You may ask why I take 55. The reason is, I would like to see any man in a responsible position able to last out the war. I assume the war may be five years in length, and the average man of over 55, under war pressures in a high position, won't last five years.

You may feel that you are stagnating. All I can say is that you are stagnating in a much more comfortable position, from the standpoint of rank, than the one in which I stagnated a number of years ago. I do think I had the edge on you in a lot of ways. I think that as a first lieutenant I had much more power, authority, and respect than many a lieutenant colonel or colonel has today. We certainly had authority. We had our companies that respected us and we didn't get pushed around by anybody, excepting the regimental commanders. Most of us paid little attention, as company commanders, to the intermediary command of majors and lieutenant colonels. They were used on all the routine investigative staff work. As I never was in that position I always thought it was a good place for a lot of them, too.

Your job at this school is to learn, so that when the time comes you will be ready. Don't think that such a time may not come very suddenly. I would like to recount just what happened in my own case. I think it may be a source of encouragement--or it may be a source of discouragement--you can take it either way. In 1939 I was a student at the War College. In 1940 I was still a captain in the Corps of Engineers, and almost 44 years of age. Four months later I was a colonel--temporary, it is true. In slightly less than two years I was responsible for the effective operation of almost a million men. The climax of my military career was less than three years away. The lesson should be clear to you. Responsibilities can descend upon you without warning. Again, all I can say is, be ready when that time comes.

Thank you very much.

COLONEL BARNES: Gentlemen, General Groves is ready for your questions. General, is there any danger in risking too much concentration in a single organization?

GENERAL GROVES: I think there is a great danger, and I would like to give you two examples. The Du Pont Company in the last war,

although it had fought vigorously against getting too much to do, was given a great deal to do. It had the atomic construction operations at Hanford, Washington. Long before that plant started into operation, Mr. Carpenter, the President, came to me and said, "We can't handle it, unless we can get out of some of our other contracts. Would you talk to General Campbell (the then Chief of Ordnance) and tell him you feel he should let us out of our operating contract at a TNT plant?" That was done. I know of no organization in the country at that time; I know of no organization today in business life that has anything like the executive capacity--particularly in numbers, of the Du Pont Company.

During the war, in discussing certain work with General Motors, its reply was very definite that it was so overloaded that it could not do anything else. You cannot put too much on an organization. If you do you are going to break down those men that have the responsibilities. Remember there are lots of men that are very fine men until they spread too thin. Then they are like any material; they reach an elastic limit; they crack, and they are not any good from then on. We have seen that in the military profession and we see it in business. We see it all the time. Men are excellent up to certain levels but not beyond.

QUESTION: Would you elaborate on your thinking with respect to the dispersion of people? You covered production quite well, I think.

GENERAL GROVES: Well, I can illustrate that best, I think, by saying that concentration of production also brings the people in. When I retired and moved to Connecticut, every time people saw me they asked, "Are we safe in New York?" New York is a very scary town, always thinking something is going to happen to it, as though it amounted to so much. Don't misunderstand me. Of all the places we could lose, with respect to the country's wartime efforts, I think it is a tie between Washington and New York. This is because they are not key cities for military production. When I went up there they asked me what I thought about it. I said, "I don't know, but I don't think it is too dangerous. After all, I am living out in Connecticut about 40 miles away, and I think I am perfectly safe. Of course the only risk I run is that the bomb won't hit the target." Since the hydrogen bomb has come into the picture, I sometimes wish I lived 20 miles farther away.

That's a terrible thing, the unnecessary concentration of people. It is not going to do any good to have them in these big suburban

developments instead of in an apartment house in a city, either. They will get killed just the same out there, because the houses won't stand up. Nobody knows what the loss will be in deaths. I would like to see us disperse the people. The only way we can disperse the people, I think, is to disperse industry, because families have to eat, and they have to earn wages before they eat, and they have to go where the jobs are. I say it is the responsibility of the Government and business management to do that dispersing for the people if they don't know enough about it themselves to do it voluntarily.

STUDENT: You mentioned the Japanese conferences on Hiroshima. There are many people who propound the theory that the A-bomb was merely an excuse for the Japanese to get out; that they wanted to get out. There is the argument that this was a reaction to the realities as the Japanese saw it. I would like to have you discuss mass weapons from the standpoint of decisiveness and I would like to have you also discuss the strategic concepts of the country in building its strategy to mass weapons instead of building strategy across the board and with all the forms.

GENERAL GROVES: With respect to the Japanese situation first-- I don't think I said here that the man who was responsible for my thinking on it was Admiral Purnell of the Navy who had been Chief of Staff to Admiral Hart before the Dutch Admiral took over. Purnell had been in the Far East and he knew more about the Japanese than I did. My association had been in California with gardeners, market people, servants, and the like. It was his conviction, and it was mine, too that the Japanese wanted an excuse to get out. We did not know how much the Emperor had lost control of the people and the leaders. There were a lot of things we did not know about the Japanese character or what would happen. This was the reasoning back of the philosophy of my report to the President before Mr. Roosevelt went to Yalta that two bombs would end the war. I also told him that we would have a bomb early in August and we would have a second one soon after, in a week or two.

That report was criticized when it was made public a year or two ago, on the grounds that scientific advisers had a contrary opinion, and therefore I had no right to tell the President. It is a good example of how the commander under present-day conditions of science and technical matters must know a great deal more than he used to have to know when things were much simpler.

As to the other question reference, the strategical concept, there are two varieties of that I think. One is, you will take every bomb you have, launch them all at one time, in the hope that a staggering blow will wipe out all resistance. You will take the chance of complete sabotage in your own organization, or the possibility that maybe there is something wrong with your weapons. You may dump your whole stock of atomic weapons and not have a single one go off. I can tell you it is not a pleasant feeling to be waiting for the report of what has happened to one of these bombs--I am not talking about peacetime experiments but the bombs on Japan. We had a breakdown in the Army's signal communications for Hiroshima. The messages, instead of coming directly back to Washington from Tinian were sent out to Manila and then back here. Why? Nobody ever knew. The first message was something like six hours late as to the takeoff of the plane. The next one, on the hitting of the target, came in about five hours late. The next one, after they got back to Tinian and we could get a real report instead of prepared messages, which were in code, and which they could not alter reasonably, came back about three hours late. It is not a pleasant thing to be facing, and I can't imagine anyone that I know of who would be apt to be in control of military strategy being willing to take the chance of dumping it all at one blow.

Maybe you would run into some new defense that the enemy would have to bring down the planes. Then you have thrown away everything without any benefit. Also you might find that because your fighters had not been able to find the target they could not hit it; or when they found it you might find that they missed the target.

My feeling was that when I was responsible I was the first to be rather limited in scope, maybe 20 bombs, and with those bombs I would like to see them destroy a certain city and take out certain industrial plants all in one industry. For example, to destroy all the production of raw aluminum billets--that would shut down everything that depended on them. But I emphasized that the important thing was to go after one item and one item only. We didn't do it against Germany. We talked about ball-bearing plants, but the Germans found it easy to spread into small plants. If they had taken out all the power-switching stations in Germany, that would have done the job. Germany would have been closed down.

I think we can draw a lesson from that too that applies to this. You have to do a complete job. We started off destroying locomotives

in Germany. At the start it was duck soup for the fighters. A little later it became more difficult but by then it was worth one plane to get one locomotive. If we had gone in and set our mind to destroy every locomotive in Germany, I know the war would have ended. But we did not persevere. I think we should aim at one item, an item that is completely essential. No matter what the cost, we should hammer at that item. You can take a raw material such as aluminum, or a material such as steel. In this country there were at least three steel plants that were always chockablock full on essential work. Nobody could do any of their work. I think Lukens Steel was one. If Lukens had been knocked out, we would have been seriously injured.

You have such things as nickel. Originally the gas diffusion process at Oak Ridge called for solid nickel pipe. That would have taken all the nickel that the world could produce. We developed nickel plating which was successful. What would have happened if all the nickel processing plants had been destroyed? We would have to wait six months or a year before they could be replaced.

There are many things. Those are the things I think we should work on in attacking the enemy. They are the things we should protect ourselves on. We have to decide which of the enemy's vital points we have to aim at. We have to decide which of our own we have to protect.

It is not enough to talk about going underground, particularly to anybody who has tried to plan about going underground. I have, and I have built some underground facilities. It is a terrible problem. It is cheaper to build two or three plants aboveground than it is to build one underground.

QUESTION: General, will you comment on the extent of our knowledge on atomic energy that the Russians have acquired by such incidents as Klaus Fuchs going through in this Canadian case, and so on?

GENERAL GROVES: Nobody knows what the Russians have gotten. They got a great deal when Fuchs betrayed us. I always felt that they got the idea of the hydrogen bomb from him, and that they got certain other vital things. Fuchs was one of the most critical men of the British delegation, because he had worked with the group that came over to review the gas diffusion plant with us, at Los Alamos. He had a tremendous amount of information. He was very smart. I don't

think Dr. May in Canada gave them much, except for one thing--that we were interested in thorium. He gave them a sample of U-233, which could only come from thorium. That told them what was going on. The Rosenbergs, in my opinion, gave them little. Other people gave them some. I don't know how much information leaked.

I would like to point out that Fuchs is a sterling example of the dangers of allied cooperation. You can't go into your ally's home yard and ask him too many questions about his people. Certain people now say I should have investigated Fuchs on the same basis as our people. My reply to that has always been, "Should I have run a security check on Winston Churchill?" How about the Queen of England? Her brother was involved to a slight extent. I know he was learning something about it.

What we did require was endorsement by the British Government. That endorsement was false. I think it was deliberately false. He was endorsed as satisfactory securitywise. I turned that down. Then came a statement that he had been investigated and was satisfactory. I turned that down. Then came a statement that he had been checked to the same degree and by the same methods used in checking men in this country who would have the same knowledge. That was just a plain lie. There was no use being diplomatic about it; you can't be diplomatic when you are faced with a deliberate falsehood on the part of an allied government's representative. Someone deliberately concealed his communistic background and his German background. The reason I say concealed was that they discussed in detail the background on several others who didn't have the bad record he had. They were Germans; they had been made citizens by an act of Parliament, as he had been. They had not been Communists; they had not been in jail in Canada as potential enemies.

That is the great danger of allied cooperation on secret matters. There is no way you can do anything about it. We would resent it here if the British said they wanted to send somebody over here to check us. After all, the same thing was true of the two Englishmen who disappeared a year or so ago. I would say McLean carried as vital information to the Russians as anyone could have carried. The story we have been told is that he knew nothing. It just isn't so. He knew a great deal. He knew certain other things that they could not have gotten from any scientist.

The third great source of loss of information has been the American determination to tell everything they know about everything; that has been both verbal and written. It has been encouraged by almost every one in this country. We published the Smythe report because there was little in it that the Russians could not figure out for themselves. In a review made beforehand it was estimated that if the job was to take the Russians from 5 to 15 years we would save the Russians about two weeks by publishing this report. The damage was done later. The American public wanted a minimum of disclosure. Many writers and radio commentators urged that we should give them the information.

There was one radio commentator who for about a year devoted one broadcast per week of, I think it was, a half hour to me and my nefarious conduct in trying to keep this information from getting out.

If you want to confirm this attitude just read the newspapers and magazines of that period, from about October 1945 until January 1947, and you will see the tremendous pressure of the propaganda. I don't know whether it was pro-Russian influence or what, but they could not have done a better job if Russia had been calling the shots. You may say that is an exaggerated opinion, but again I say go back and read the papers. A great deal of information was disclosed, and this desire for publication on the part of some people has continued. It is a national characteristic of the American people. It has led to the dispatch of much information to Russia, aided no doubt by the anti-anti-Communist attitude of many writers, commentators, editors, and newspaper publishers. You know that.

COLONEL BARNES: On behalf of all of us I thank you very much indeed, General. There has been a lot of anticipation for this lecture and I want you to know you didn't let us down. Your talk has been very stimulating and I'm sure your views will be a great help to the class.

GENERAL GROVES: Thank you very much.

(6 Apr 1954--250)S/fhl