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12 May 1942

Generals Per: Major General L. H. Brown

U-13 - File 7/7

Subject: Summary of Target Committee Meetings on 10 and 11 May 1942

1. The second meeting of the Target Committee convened at 9:00 AM
12 May in Dr. Oppenheimer's office at Site 7 with the following present:

   General Farrell
   Dr. O. Leupharn
   Colonel Swann
   Dr. Brames
   Lieutenant Colonel Pasman
   Dr. Dewey
   Colonel Sweeney
   Dr. Brames
   Major Berry
   Mr. Williams
   Mr. Tolman
   Dr. Pasney
   Dr. Oppenheimer
   Dr. Wilson

Mr. Betts and Dr. Brames were brought into the meeting for discussion of item A
of the agenda. During the course of the meeting several were formed from the
committee members and others to serve in the afternoon and during the following
sessions, to discuss those in the agenda. The concluding meeting was held at 11:00 AM
12 May in Dr. Oppenheimer's office with the following present:

   Colonel Swann
   Dr. Sweeney
   Captain Kean
   Mr. Williams
   Major Berry
   Mr. Tolman
   Dr. Pasney
   Dr. Oppenheimer
   Dr. Wilson

2. The agenda for the meetings presented by Dr. Oppenheimer consisted of
the following:

A. Weight of Fatigue
B. Report on Weather and Operations
C. Gadget Stabilizing and Landing
D. Status of Targets
E. Psychological Factors in Target Selection
F. Use Against Military Objectives
G. Radiological Effects
H. Coordinated Air Operations

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2. The grades for the roads -- continued:

I. Requirement

II. Operating Requirements for Safety of Aircraft

III. Coordination with Local Progress

3. Height of Detonation

A. The criteria for determining height selection were discussed. It was agreed that conservative figures should be used in determining the height since it is not possible to predict accurately the magnitude of the explosion and since the height can be determined as such as 20 feet below the optimum with a reduction of 2% in area of damage whereas a detonation 50 feet above the optimum will cause the same loss in area. It was agreed that these should be prepared to meet the following possibilities:

1. For the Little Boy the detonation heights should correspond to a pressure of 9 psi, a height of the shrapnel of 250 feet, and a magnitude of detonation of either 3,000 or 15,000 tons of R.E. equivalent. With present limitations the fuse setting corresponding to 3,000 tons equivalent would be used but testing for the other should be available in case were as known at the time of delivery. The heights of detonation corresponding to 3,000 and 15,000 tons are 2,000 feet and 6,000 feet, respectively.

2. For the Fat Man the detonation heights should correspond to a pressure of 3 psi, a height of the shrapnel of 150 feet, and a magnitude of detonation of 700, 2,000, or 5,000 tons of R.E. equivalent. With present limitations the fuse setting corresponding to 2,000 tons equivalent would be used but testing for the other values should be available at the time of final delivery. The heights of detonation corresponding to 700, 2,000, and 5,000 tons are 400 feet, 1,000 feet and 1,500 feet, respectively. Finally, 100 feet will be used for this weapon.

B. In the case of the Fat Man delay circuits are introduced into the fuze for other purposes which make the detonation of the bomb 500 feet below the height at which the fuse is set. For this reason as far as the Fat Man is concerned the fuse settings should be 900 feet, 1,000 feet, or 1,500 feet.

C. In view of the above it was agreed by all present that figures should be available at least 48 hours before delivery. These heights are 1,000 feet, 1,500 feet, 2,000 feet, and 5,000 feet. With present limitations the 1,500 feet fuse would be most likely to be used but testing for the fat and the little boy, later data presented by Dr. Franks, modify the above conclusions on fuze setting. The delay is intended to provide a differential delay for the little boy in the fat over the 20 feet set for the 500 feet and 500 feet, for this reason one of the delays (100 feet) must be removed.
4. Report on Training and Operations

A. In the latest training and operations report, the Air Force commissioned a new operational procedure for visual bombing missions. The procedure involves dropping bombs from low altitudes, which enhances accuracy and reduces collateral damage. The report also highlights the importance of coordinated aerial and ground operations to ensure mission success.

B. During joint exercises, units must be able to integrate seamlessly with various aircraft types to achieve optimal results. The effectiveness of such exercises is crucial for future operations, as it allows for the testing and refinement of tactics and strategies.

C. The training regimen is being expanded to include more advanced technology and simulation exercises, preparing personnel for the complex missions they may encounter in the future.

5. Subject: Logistics and Support

A. The logistics team has implemented new protocols to ensure timely and efficient delivery of supplies to operational units. This includes the use of advanced tracking systems and streamlined communication channels to minimize delays and maximize resource allocation.

B. Regular audits and evaluations are conducted to assess the effectiveness of the logistics system, with necessary adjustments made to improve performance.

C. The emphasis on logistics is crucial in maintaining readiness and ensuring that units are equipped with the necessary resources to carry out their missions successfully.
4. Defense equipment and location

5. The type of aircraft returns to the base and the duration that it will be a normal location may not be necessary to remain for a week. In the case of

6. The list which has been compiled to the collection of information, the altitudes. These on will be modified, will be

7. It is assumed that the list for the collection of information is complete and that the list contains all the necessary details. The list has been

8. The list for the collection of information contains a number of items which are necessary to be collected, such as the list of aircraft, the

9. It was agreed that prior to actual delivery, a plan of operation be prepared as a guide to the aircrew and on the aircraft as to procedures

10. Situation of target

11. The target is an urban industrial area with a population of 1,000,000. It is the former capital of Japan.

12. The target is an urban industrial area located near the industrial area. It is a

13. The target is an urban industrial area located near the industrial area. It is a

14. The target is an urban industrial area located near the industrial area. It is a

15. The target is an urban industrial area located near the industrial area. It is a

16. The target is an urban industrial area located near the industrial area. It is a

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19. The target is an urban industrial area located near the industrial area. It is a
5. NISHI AMEBA - This is an important heavy industrial area which was not so far been attacked. Industrial activities include steel manufacture, machine tools, electric, electrical appliances and other industries. As the damage to Tokyo has increased, additional industries have moved to Nishia. It has the disadvantage of the east important target area being separated by a large body of water and so being in the invisible anti-aircraft concentration in Japan. For one thing it has the advantage as an interchange target for use in case of hit which is very great. (Classified as an A Target)

6. KOBUA ARSENAL - This is one of the largest arsenals in Japan and is surrounded by urban industrial areas. The arsenal is important for light defense, anti-aircraft and some naval defense materials. The dimensions of the arsenal are 1600 x 2200 feet. The dimension are such that if the bomb were properly placed full advantage could be taken of the lower pressure immediately underneath the bomb for destroying the core solid structures and of the core hit considered blast damage could be done to core steel structures further away. (Classified as an A Target)

7. HOKA - This is a port of transportation on the R.V. coast of Japan. Its importance is increasing as new ports are damaged. Marine industries are located there and it is a potential center for industrial concentration. It has oil refineries and storage. (Classified as an A Target)

8. The possibility of bombing the Emperor's palace was discussed. It was agreed that we should not recommend this but that any action this bombing should come from authorities on military policy. It was agreed that we should obtain information from which we could determine the effectiveness of our weapon against this target.

9. It was the recommendation of those present at the meeting that the first four choices of targets for our weapon should be the following:

   a. Kyoto
   b. Hiroshima
   c. Osaka
   d. Kobe
   e. Yokohama
   f. Kobe Arsenal

6. Mr. Stevens agreed to do the following: (I) brief Colonel Fisher thoroughly on these matters, (2) request reservations for three targets, (3) find out more about the target area including exact locations of the strategic industries there, (4) obtain further photo information on the targets, i.e. (1) to determine the nature of the construction, the area, height, width and roof coverage of buildings. It was also agreed to keep in touch with the target data on the island and to keep the same type of picture report to other possible weapon and to will also also on location of small military targets and obtain further details on the Emperor's palace.

COMMUNICATED
COMMANDING OFFICER 13TH ARMY 17-9-43
7. Psychological Factors in Target Selection

It was agreed that psychological factors in the target selection were of great importance. The results of this are (1) obtaining the greatest psychological effect against Japan and (2) making the initial use sufficiently spectacular for the importance of the weapon to be internationally recognized when publicly announced.

8. The Against "Military" Objective

It was agreed that for the initial use of the weapon any small and strictly military objective should be located in a much larger area subject to blast damage in order to avoid undue risks of the weapon being lost due to bad placing of the bomb.

9. Radiological Effect

Dr. Oppenheimer presented a memo he had prepared on the radiological effects of the weapon. This memo will not be repeated in this summary but is being sent to General Groves as a separate exhibit. The basic recommendations of this memo are (1) for radiological reasons no aircraft should be closer than 2-1/2 miles to the point of detonation (for blast reasons the distance should be greater) and (2) aircraft must avoid the cloud of radioactive materials. If other aircraft are to conduct missions shortly after the detonation, monitoring planes should determine the areas to be avoided.

10. Coordinated Air Operations

A. The feasibility of following the raid by an incoherent mission was discussed. This has the great advantage that the essential fire-fighting ability will probably be paralyzed by the blast so that a very simple configuration should be capable of being started. However, until more is learned about the phenomena associated with a detonation of the weapon, such as the extent to which there will be radioactive clouds, an incoherent mission immediately after the detonation of the weapon should be avoided. A coordinated incoherent raid should be feasible on the following day at which time the fire raid should still be quite effective. By delaying the coordinated raid to the following day, the misleading of our already contemplated operations will not be made more difficult. Radio reconnaissance of the actual damage directly caused by the weapon can be obtained without confusion from the subsequent fire raid, and dangers from radioactive clouds can be avoided.

B. Fire-tower cover should be used for the operation as directed by the Head Senior Official.
11. PRELIMINARY

A. It was agreed by all that very complete rehearsals of the roots operation are essential to its success. It is possible for ships (34) thousand units to be shipped from this country in June and perhaps sixty (60) being shipped in July. These rehearsals should take place beginning in July. It seems that in the rehearsals should be very complete including the placing of spotter aircraft over the alternative targets, use of fighter cover, etc. Even though it is hoped that radar will not be used these rehearsals of radar operations are required in order that the operations may be carried out successfully if emergency arises for which they are required.

12. OPERATING REQUIREMENTS FOR SAFETY OF AIRCRAFT

A. Dr. Paney reported some very encouraging information he had just received from England in this respect. His previous information was that no one could guarantee the safety of a large aircraft at blast pressures greater than 1/4 lb. per square inch. However, in some recent experiments in England large aircraft have been flown over detonations of 2,000 lbs. of TNT and pilots have not objected to going as low as 900 feet. On this basis with a 100,000 ton total equivalent energy release or a 14,000 ton equivalent blast energy 23,000 feet would be a safe altitude on the basis of these experiments if allowance is made for the rarification of the atmosphere at high altitudes. However, due to the greater duration of the blast in our case, the safe height will probably be somewhat greater.

13. COORDINATION WITH 21ST PROGRAM

A. This section was included in part of the other discussion and is included in previous paragraphs of this summary.

14. It was agreed that the next meeting of the Target Committee should take place at 9:00 AM EST on 25 May in Room 503 of the Pentagon Building in Washington. Dr. Oppenheimer recommended and others agreed that either Captain Parsons or Dr. Ramsey should attend this meeting.

15. In view of the high classification of the minutes of this meeting it was agreed that copies should not be sent to those present but that instead one copy should be kept on file in General Groves' office, one copy in Dr. Oppenheimer's office, and one copy in Captain Parsons' office.

Distribution:
Copy 1: Maj Gen L. D. Groves
Copy 2: Capt. Parsons
Copies 3 & 4: J. R. Westheimer

SECRET DECISION

[Signatures]

Major J. A. Berry
Dr. R. P. Ramsey