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DETAIL OF SELECTED OFFICERS OF GF TO AWS

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GENERAL STAFF

MEMORANDUM

Submitted by Col Carlmark

IV-13653

Command and Staff College
2d Command Class
8 July 1946

File No. _____

SUBJECT: Detail of selected officers of Ground Forces to Air Weather Service.

TO: Commanding General Air Transport Command (Director of the Command Class).

SUBMITTED BY: CARL W. CARLMARK
Colonel, AC

13653

1. PROBLEM.

To improve the ground forces use of weather in planning and operations.

2. DISCUSSION.

World War II produced a large number of ground officers with combat and staff experience who were extremely weather conscious. They understand the importance of weather, but they do not understand its potentialities of employment in planning and operations. Since the movement of infantry and armor is so closely allied to air participation, weather is multiplied in importance to the ground forces. After all other factors have been considered, weather determines when an amphibious assault is to be made (See Annex I) and when the logistical buildup can support the beachhead breakout.

Ground Force officers, especially in the 2d and 3d Staff positions, should understand weather not only in the negative sense of determination of its interference with a planned operation, but also in the positive sense of employment to aid in the execution of operations and estimation of the enemies capabilities. We must learn to use weather as a weapon.

During World War II weather forecasting for the ground forces was provided by officers of the Air Weather Service serving as staff officers with the ground forces. This procedure proved sound but full exploitation of the weather forecasting service was not realized due to a lack of appreciation and understanding on the part of ground officers of weather forecasting techniques, its limitations and potentialities and its application to ground operations. (See Annex II)

The ground forces' use of weather in planning and operations could be improved by any one of the following proposals:

PROPOSAL 1: Have Air Weather Service Officers specialists assigned to and trained in the ground forces for normal ground force duty. This plan has the disadvantage of a present acute shortage of Air Weather Service Officer specialists. Another disadvantage is that by the time it is possible to select an officer he would have had considerable experience in weather and he would be of more value to the army in his specialty.

PROPOSAL 2: Have the ground forces set up its own weather service. This amounts to duplication and inefficiency and is contrary to the idea of unification of services to effect economy.

PROPOSAL 3: Have selected ground officers of enough experience in their particular branch so that they could be screened as potential caliber for staff or command positions who would then be detailed for a two year duty with the Air Weather Service. This duty would consist of a complete forecasting course of 9 months and practical forecasting for 15 months. This plan has the advantage of providing a nucleous of ground force officers who would understand weather and who could exploit weather in their particular branch or staff assignment.

3. ACTION RECOMMENDED.

That immediately fifty selected ground force officers below the grade of major be detailed to the Air Weather Service for a period of two years and subsequently twenty officers be detailed annually. That the letter in ANNEX III be approved to accomplish this recommendation.

Carl W Carlmark
CARL W. CARLMARK
Colonel, AC

4. CONCURRENCES:

ACofS Operations and Maintenance
ACofS Personnel and Administration
ACofS Plans

ANNEX I

TO

GENERAL STAFF MEMORANDUM: DETAIL OF SELECTED OFFICERS OF GROUND FORCES TO AIR WEATHER SERVICE

Excerpts from an article "Eisenhower's Six Great Decisions" by Lt Gen Walter Bedell Smith

Looking back on the war in Europe, six decisions stand out from the tensions of those months as the determining points where the defeat of Hitler was sealed. All were made by the Supreme Allied Commander, General of the Army Dwight D. Eisenhower, on whose shoulders rested the responsibility of every undertaking. The daily routine of our high headquarters was a succession of plan and decision, each vital, since it brought us closer to victory. But in these six can be traced the logic of our progress from the ports of England to the final surrender at Reims.

All but the first were based on strictly military considerations, bold decisions which displayed General Eisenhower's unusually keen sense of strategy and timing. The first, on which all others depended, was forced on the Supreme Commander not by the action of the enemy, but by the weather.

This was the irrevocable order, issued shortly after 0400 hours on June 5, 1944, to launch the invasion of Normandy during a twenty-four-hour break in the worst June weather the always uncertain English Channel had churned up in twenty years. We were at Portsmouth, where an Advanced Command Post had been set up overlooking the harbor. Everything the planners could do to insure the success of the gigantic undertaking had been completed. The troops were in the armada's 5000 ships, ready to converge on Normandy from every port in England. Weather could wreck the expedition, and already the assault had been postponed a day because of the Channel gale.

No commander has ever faced a more formidable decision than General Eisenhower at that dawn meeting of his commanders in chief and meteorologists. With the wind blowing rain against the indow, it was one man's responsibility to weigh all the factors and decide -- twenty-four-hours before H Hour on the beaches--whether he would give the order to go.

During April, the first of the meetings was set up to drill the Supreme Commander in the weather factors that would govern his invasion decision. These "dry runs" were held weekly at first, then semiweekly, and finally, after the first of June, there were three meetings each day. From the beginning it had been clear that the choice of D day depended on the weather. We proposed to cross the treacherous waters of the English Channel with more than 5000 ships and hundreds of smaller ship-to-shore craft to assault a coast bristling with determined troops and all manner of fixed defenses. The hazardous expedition would hang on four factors of weather.

First, we wanted low tide, so that the underwater and half-hidden beach obstacles could be seen and destroyed by our demolition crews. The low tide must be late enough in the morning for an hour's good daylight to permit the saturation bombing of defenses which would precede the landings themselves. But it must come early enough in the morning so that a second low tide would occur before darkness set in. Without the second low tide we could not land the follow-up divisions.

For the airborne landings behind Utah Beach and at road centers around Caen, timed for 0200 hours on D day, we needed a late-rising full moon, so the pilots could approach their objectives in darkness, but have moonlight to pick out the drop zones. For the naval craft and transports, we must have a reasonable sea and good visibility to reduce the perils of navigation in crowded waters and to keep troops from arriving at the point of assault so seasick they could not leave their ships. Finally, we hoped for a fair wind blowing inshore

to drive the smoke and dust of battle toward the enemy.

Two of these requirements were within the ready prediction of the meteorologists. They could tell us when we should have the low tide and the full moon. During four days in early June, they said, the exact conditions - barring storms - would be forthcoming: on the fourth, fifth, sixth and seventh. The ideal day was June fifth. But of the other critical factors - wind, sea and storm - the experts could give no certain prediction. Those were in the hands of fate.

It was foolhardy to imagine that all the conditions would be perfect. The dry runs were to accustom the Supreme Commander to estimating the minimum he could accept. The meetings were held first at Bushy Park and later in Southwick House at Portsmouth, attended by the three Commanders in Chief, Admiral Ramsay, Field Marshal Montgomery and Air Chief Marshal Leigh-Mallory with their chiefs of staff. The meteorologists were two American and two British officers headed by Group Captain J. M. Stagg, a tall, quiet, blue-eyed Scotsman who was their chief.

The weather men produced their calculations for the period twenty-four hours away, since General Eisenhower would have to make his final decision at least that far in advance. They predicted the ceiling and the amount of cloud, the direction and velocity of the wind and the nature of the sea. Then General Eisenhower and each of his commanders asked questions. When everything was complete in his mind, the Supreme Commander weighed the weather factors one against the other and made his practice decision--to launch the invasion next day or to postpone it.

The time was fast approaching when the decision would be taken in all seriousness. On May seventeenth, General Eisenhower tentatively set D day for June fifth.

***If the weather held the Supreme Commander's decision would be a routine confirmation of June fifth as D day. The sober fact was that the worst June storm in twenty years was whipping the channel. By 1000 hours on June 3, it was evident that the weather was worsening, not improving. The meteorologists confirmed it. Periodically that day we listened to their forecasts but they could promise no immediate change. There could be no invasion on June fifth - the ideal day. We drove back through the blackout after the ten o'clock meeting on June fourth with full realization that if we could not go on June sixth we should almost certainly have to postpone our assault for another two weeks, the earliest date when the tide would again be right.

It was still drizzling outside the trailer when I got up to attend the meeting set for 0400 on the morning of June fifth.***

The meteorologists were brought in at once. There was the ghost of a smile on the tired face of the tall Scot. "I think we have found a gleam of hope for you, sir," he said to General Eisenhower, and we all listened expectantly. "The mass of weather fronts coming in from the Atlantic is moving faster than we anticipated," the chief meteorologist continued. "We predict there will be rather fair conditions beginning late on June fifth and lasting until the next morning, June sixth, with a drop in wind velocity and some break in the clouds. Ceiling--about three thousand."

But toward evening of June sixth, his charts showed, there would be a recurrence of bad weather, with high winds and rough seas. It was impossible for the experts to predict how much longer the bad weather would last. They were giving us about twenty-four hours of reasonable weather. That was all.

Rapid questions were asked by all the commanders. Leigh-Mallory wanted to know just how much cloud could beexpected for his bombers--ten-ten, eight-ten, six-ten. The forecasters satisfied him. Admiral Ramsay asked about the seas, the strength and velocity of the wind. General Eisenhower inquired how many hours he could count on for the attack and just when bad weather would resume. "The morning will be fair," the Scot said. "Good weather may last through the afternoon."

All the questions had been asked, and then there was silence. No one broke it, and I suppose all the men were thinking, as I was, that postponement now meant two weeks' delay. It meant an almost insoluble problem of what to do with the thousands of troops in the ships. I remembered their dejected

faces. It was impossible to keep them closed in for two weeks, yet to let them out of the beach areas would almost certainly convey information to the Germans about our attack. There was the problem of the press correspondents, too--almost 100 scattered through the invasion force. The very fact that they filed no dispatches for two weeks woudl arouse suspicion. Finally, there would be the reaction of our Russian Ally, whose great eastern offensive was to be co-ordinated with our assault.

The silence lasted for five full minutes while General Eisenhower sat on a sofa before the bookcase which filled the end of the room. I never realized before, the loneliness and isolation of a commander at a time when such a momentous decision has to be taken, with full knowledge that failure or success rests on his judgment alone. He sat there quietly, not getting up to pace with quick strides, as he often does. He was tense, weighing every consideration of weather as he had been briefed to do during the dry runs since April, and weighing with them those other imponderables.

Finally he looked up, and the tension was gone from his face. He said briskly, "Well, we'll go!"

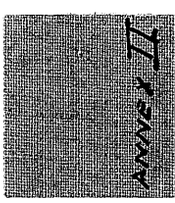
COMMAND AND STAFF COLLEGE 2D COMMAND CLASS

ANNEX II

TO

GENERAL STAFF MEMORANDUM: Detail of Selected Officers of Ground Forces to Air Weather Service

An Article: "Weather in Planning and Operations" by Major J. M. Fahey



WEATHER IN PLANNING AND OPERATIONS

A War Correspondent for the Associated Press in summing up his observations of the planning and initial operational stages of the invasion of Okinawa stated, "That is how important weather is in the Pacific War. It ranks with guns and ammunition. It is the first step in planning, the final determination in execution."

This statement concerning operations in the Pacific can also be applied to all other theaters of operation without fear of contradiction. A study of operations in any theater will show the tremendous effect that weather had on the activities of the adversaries while a closer examination will further demonstrate that the commander who realized the importance of weather in his operations and incorporated weather information into his planning took the field with an advantage which usually led to victory. Other campaign studies will reveal cases where commanders ignored the weather in their planning only to find that they were unable to achieve their objectives due to the unanticipated influence of atmospheric conditions.

Many commanders and staff officers have failed to appreciate the wisdom contained in the statement of the quoted war correspondent. Despite lessons clearly pointed out in the past war, there is still a reluctance, especially on the part of Ground and Service personnel, to bring weather into operational planning. This contention is borne out by the fact that in some of our military schools today, we find that weather as a subject on the curriculum is practically ignored.

Perhaps it is necessary to point out the importance of weather information in planning and operations. World War II which can be considered the first major engagement between nations where foreknowledge of weather conditions was possible should contain enough examples to convince the most skeptical.

Interrogation of German prisoners of war has brough out their story of the planning for the Battle of the Bulge. Runstedt in this situation gives to history a perfect example of how weather information can be used in military planning and operations. Late in November, the German commander went to work with his weather service for the purpose of determining when in the near future he would be able to launch a large scale offensive against the Allies with the assurance that he would not be hampered by enemy air superiority. He was obviously aware of the fact that the German Air Force was incapable of protecting his troops and immediate lines of communications so he went into a study of the one force which could do the task for him--weather. German meteorologists informed him that his desire for seven consecutive days of weather which would ground Allied tactical aircraft had the best opportunity of being realized during the latter half of December. Later when long range forecasting was feasible, the German forecasters told their commander the exact date on which he could start his operation so as to have the protective cover of weather for the period demanded.

That German planning in this operation was successful from the viewpoint of weather is now a matter of history. The Germans failed not because of the weather but in spite of it for they actually got a longer respite from Allied air power than they expected. While German strategy in the Ardennes offensive may be criticized from the viewpoint of its effect on the overall plan for the defense of Germany, the use of weather as a weapon and as an integral part of the planning cannot. Weather protected the German Forces and their immediate lines of communications much more efficiently than the German Air Force or the German antiaircraft could have done.

Although the invasion of Leyte was made necessary by other considerations which overruled the weather, it demonstrates the effect that atmospheric conditions can have on such an undertaking. The invasion of Leyte took place during a period which offered the least desirable weather conditions for this type of campaign. Planners were aware of this fact when the decision was made that the invasion would go on despite weather indications.

The Results.

Weather conditions encountered were in accordance with the studies rendered prior to the operation. Because of this, the campaign was prolonged beyond the date set for securing the island. The infantry encountered considerable difficulty fighting under the conditions imposed by nature, while a more important item, the construction of air fields and supply installations necessary for the support of the invasion of Luzon was so delayed that it was necessary to postpone D day for Luzon from 20 Dec 44 to 9 Jan 45.

To further emphasize the importance of weather in military operations an investigation of the German invasion of Poland, the cracking of the Mareth Line in Tunisia by the British Eighth Army, the Jap withdrawal from Kiska, the flight of the Gneisenau and the Sharnhorst, the invasion of Normandy, and the air drop in Holland might be carried out and each would show that weather was an important part of the planning and execution of the operation, -- that, in some cases, whether was actually used as a weapon.

Because of the importance of weather in staff planning and in field operations, it behooves military personnel to become more aware of the limitations and capabilities of weather forecasting, more familiar with the types of weather information that are available, and more appreciative of the role that that this information can play in modern warfare.

Many people have the tendency to ignore weather forecasts and studies because of insufficient knowledge of the capabilities and limitations of forecasting plus an inclination to only remember when the forecaster missed and not when he hit. The science of Meteorology, if it may be called a science and that is a debatable point, is not such that it permits exact calculations as regards weather conditions. Its exactitude is so low that experience is more important in weather forecasting than it is in many other lines of endeavor. Meteorology is not objective in the sense that the forecaster can make several calculations and then come out with the right answer. Rather it consists mainly of a subjective analysis and evaluation of the various forces that cause weather with the result that human judgment brings into the situation erroneous results. In addition while the art of forecasting may be old, the science of forecasting is still in its infancy. Considerable research is still being done on what seems to be an elementary matter, the general circulation of the atmosphere, but little has been accomplished. Yet the solution of this problem would open the gates to a flood of solutions of other dependent problems.

Despite this lack of basic theory, weather forecasters, mainly through experience, have reached a stage of development where they are able to accurately forecast weather situations over a period of time with a considerable degree of accuracy. Again it is difficult to even state the degree of accuracy objectively since there are several schools of thought on how to judge the accuracy of a forecast but one is not far in error when he places the accuracy at approximately 80% for short range forecasting (short range forecasting is generally considered to involve a period of forty-eight hours). It is only logical that, in view of the lack of mathematical tools that the meteorologist has at his disposal, forecasts covering prolonged periods of time are going to be less accurate than those that concern themselves with only a matter of hours. The amount of publicity given to long range forecasting has created an erroneous impression of the ability of meteorologists in this field. Long range forecasting as it exists today is far from satisfactory, and prognosticators would be among the first to admit, if not proclaim, this fact. Extensive research has been done on the problem of forecasting for five days in advance and, although this work has been going on for several years, little has been accomplished towards turning out a practical detailed and precise five day forecast. Attempts to forecast for longer periods have only brought about the same results - a rather indefinite general forecast which is limited in value.

A knowledge of these limitations is necessary to every commander and staff officer who intends to utilize weather information in his planning. He, or they, must be aware of what the forecaster is capable of doing and what he cannot do. Without this background, personnel are apt to expect too much from the weather section with the result that when they are informed that the information cannot be given with any degree of confidence, the impression is created that the weather service cannot forecast the weather and weather drops out of the planning picture. On the other hand when the commander knows the capabilities of his weather personnel he can arrange his plan accordingly.

Weather information used for military planning usually falls into three categories, the climatic study, the long range forecast, and the short range forecast. These in turn fit into long range planning, where the operations is more than two weeks distant, short range planning, where the operation is three days to two weeks distant, and immediate operations, where the planned operations is to take place within forty-eight hours.

The climatic study is not a forecast but rather is a historical, statistical survey of the weather over a particular area. This survey reports the average weather that has occurred in the area under surveillance. In it can be found data on average temperatures, average maximum and minimum temperatures, average frequency and amount of rainfall, average cloud cover, cloud heights, visibility and average wind conditions. There is little indication of the current trend of the weather in this type of information and no element of timing. Although the study may show that on the average rain may be expected on fifteen days during a particular month, there is no information given as to whether this season will vary from that average or on which of the thirty days of the month we may expect the rain. For this reason, climatic information must be restricted to long range planning when the period of operations is beyond the ability of the forecasters to give long range forecasts. It is usually the best information that is available and is of greater value than any weather planning factor that may be conceived from thin air.

The long range forecast while not approaching the accuracy of the short range forecast is still of renumerative value in planning stages. Due to the inadequacy of implements, it is necessary for the meteorologist to restrict the wording of a long range forecast to general terms. Despite this generality, the information can be used for planning purposes. This type of information has two outstanding values. First, if previous planning has been based on climatic studies, the long range forecast will give an indication to the planner how this particular season will vary from the average. Thus in the case where the climatic data indicated that fifteen days of rain would be encountered on the average, the long range forecast will show that possibly only three days of rain are to be expected during the first half of this period. This change of weather conditions would be of considerable use to the planners for it would permit them to alter their plans well in advance. Secondly, the long range forecast brings timing into the weather planning for the first time. Here will be found information telling on which three of the first fifteen days it will rain and this will permit more detailed operational plans to be made.

The short range forecast which is the most accurate as well as the most precise and detailed item of prognostication put out by the weather service acts as a stop and go sign for military operations. Whereas climatic studies and long range forecasts may form the first step in planning, the short range forecast is the final determination in execution. It should be remembered that it was a short range forecast that postponed the invasion of Normandy for twenty-four hours and also set off the crossing of the Ruhr.

This forecast times the occurrence of weather phenomena in terms of hours and gives a detailed discussion of weather for the immediate future. The period that this forecast may cover accurately is dependent on various factors such as the season, the particular weather regime that is governing the area at the time, and the area in which the forecast is being made. In some localities such as England forecasts of this nature frequently cannot cover a period of more than twenty-four hours while in other areas such as Arizona and New Mexico, particularly in the summertime, the forecast might extend to a period of seventy-two hours with considerable accuracy.

The true value of the short range forecast lies in its detail. On this information definite plans may be made although in most cases it is advisable to have an alternate plan ready in the event the forecast is not correct. A few illustrations of the use of this information might include the strengthening of patrols when poor visibility is predicted, preparedness to ward off surprise attacks under the same conditions, on positioning of troops for a surprise offensive. A forecast of heavy rain for the immediate future might make it advisable to move artillery forward before the rain so that they would be in a position to strike against enemy vehicles which might be immobilized by the resulting mud. This latter situation is one reported to have been used by the

Russians on several occasions much to the distress of the Germans.

Regardless of what stage the planning of a military operation might be in, there is a place for weather information. The role that this information might play will be variable depending on the operation. Airborne operations demand that weather planning assume a high position while logistical planning in some cases may not find the weather so important. Regardless of the nature of the planning if the weather information is utilized properly only one result can be forthcoming -- a more efficient operation.

In combat operations particularly of an amphibious nature, weather may be the first line of defense for the enemy. It is a defense that cannot be breached by heavy guns or tons of bombs. It can only be overcome by thorough pre-planning which recognizes the potentialities of the atmosphere and the ability of weather personnel to handle the problem.

Weather is an ever present factor in every operation. Proper use of it invariably pays dividends. Failure to plan on it may lead to bankruptcy. Since the cost of military failure is so high in terms of lives and equipment and the failure due to weather can be overcome by proper weather planning, all military personnel must become more cognizant of the capabilities and limitations of meterological forecasting.

COMMAND AND STAFF COLLEGE 2D COMMAND CLASS

ANNEX III

TO

GENERAL STAFF MEMORANDUM: Detail of Selected Officers of Ground Forces to Air Weather Service

Letter for the Commanding General's approval.

ANNEX III

HEADQUARTERS AIR TRANSPORT COMMAND
Washington, D.C.

8 July 1946

SUBJECT: Detail of Selected Officers of Ground Forces to Air Weather Service.

TO: Commanding General Army Air Forces

1. Under present regulations the Air Weather Service is charged with rendering weather service to the ground forces.

2. In order to properly fulfill this responsibility it is desired to create within the army ground forces a nucleous of selected officers who have had training in their basic branch, who are potential staff and command officers and who have had weather forecasting training, the same training as given the specialists furnished by the Air Weather Service.

3. In this manner the Air Weather Service by specialists will continue to provide weather service to the ground forces, but in the ground forces will be created a better understanding of the weather factors and the capabilities and limitations of weather forecasting. The ground force officers will also be in a position to bring to the Air Weather Service the weather requirements and problems peculiar to their branch.

4. It is proposed that the detail to the Air Weather Service be for two years, nine months of which will consist of forecasting school and fifteen months of practical forecasting in the field.

5. The Air Weather Service is prepared to immediately accept an initial quota of fifty selected ground force officers below the grade of major for detail to begin such training. Subsequently twenty officers can be trained annually.

H. L. GEORGE
Lt Gen, USA