

SENIOR CLASS #1933

OP. PROB. IV - 1933

ANALYSES AND COMMENT OF RESEARCH DEPARTMENT by

- (1) Captain Van Auken on battleships, air forces, cruisers and train of BLUE.
- (2) Destroyers and Submarines - Captain Taylor
- (3) ORANGE plans, operations and all ORANGE types, by Commander Hoey.

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(Accompanying letter from Research Department to
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Analysis of ORANGE by Commander G.R. Hoey, of Research Dept.

(During Problem he as a student was commanding an ORANGE Force)

OPERATION PROBLEM IV- SR.- 1933

The situation confronting ORANGE at the beginning of this problem was "hostilities with YELLOW in order to gain political control of YELLOW, which have led to BLUE'S support of YELLOW in such a manner than an ORANGE-BLUE war naturally followed." The political object of ORANGE is the elimination of BLUE as an effective political factor in the FAR EAST.

ORANGE is engaged in military operations in Northern YELLOW and requires that the routes to SHANGHAI, TSINGTAU, DAIREN and across the SEA OF JAPAN be kept open. This is being done by the CHINA Squadron, operating directly under the Chief of Naval General Staff. In view of the military operations in Northern YELLOW, ORANGE is unable at this time to undertake operations for the capture of the PHILIPPINES or of MANILA alone.

The task assigned the ORANGE Fleet was:

"To prevent the establishment of the BLUE Fleet in the FAR EAST."

In addition, the C-in-C was charged with the protection of ORANGE shipping in the FAR EAST, except in the YELLOW SEA and the SEA OF JAPAN. The operations of the ORANGE Fleet were to include the capture of GUAM and the securing of her bases in the MARSHALLS and the CAROLINES.

In order to carry out his Mission, the C-in-C (Rear Admiral Train) adopted the following plan: "to destroy the BLUE Fleet by locating it upon its departure from HAWAII, by surprise attacks at every opportunity with submarines, aircraft and destroyers, and finally by bringing BLUE to a fleet engagement with all available ORANGE forces after his superiority in capital ships and aircraft has been reduced, in order to prevent the establishment of the BLUE Fleet in the FAR EAST."

During the advance of the BLUE Fleet into the WESTERN PACIFIC the strategy of ORANGE is offensive and he desires tactical contact

under favorable conditions. "ORANGE has freedom of action in this phase while BLUE is held fast by the necessity of accomplishing a long journey to a fixed destination." ORANGE in her operations to prevent the safe passage of BLUE to a base and in obstructing BLUE trade in the FAR EAST and protecting her own in that theater is engaged in exercising command. Later ORANGE will be also engaged in disputing command or in gaining command if conditions become favorable."

The salient feature of the ORANGE plan was to reduce the BLUE forces by attrition attack to a point where they could be engaged on equal or superior terms.

The ORANGE forces were divided into two main sub-divisions - the Battle Force (6 BB, 1 CV) and the Striking Force (3 CC, 8 CA-new, 7 CL-old, 3 CL-new, 6 XCL, 32 DD-new, 34 DD-old, 24 DL, 6 CL-old as destroyer leaders, 3 CV with 64 VF, 32 VB, 44 VT, 45 SS and auxiliaries). Minor forces included the Advance Submarine Force (20 SS), the Advance Air Force (4 DD, 2 AV, 2 XAV, with 42 VP), the Mine Force (16 AM, 2 Netlayers), the China Sea Patrol (4 CA-old, 1 CM, 15 DM-old) and the Expeditionary Force (5 XCL, 27,386 troops, A.E.F. with 6 VO, 9 VS, 6 VT, 10 VF and troop ships).

Battle Force bring BLUE Fleet to action after attrition tactics have reduced BLUE'S capital ships and carriers.

Striking Force strike BLUE Fleet by day and night surprise attacks. Join Battle Force when fleet battle is imminent.

Advance Submarine Force maintain contact with BLUE Fleet from moment of its departure from HAWAIIAN waters until otherwise directed. Attack enemy at every opportunity.

Advance Air Force scout for enemy. Retire before its advance. When directed join Striking Force and operate offensively against the enemy. Base on JALUIT and ENIWETOK.

Mine Force mine such areas as Commander-in-Chief may direct.

China Sea Force protect shipping in FAR EAST south of YELLOW SEA. Join Battle Force for Fleet engagement.

Expeditionary Force occupy TRUK, PELEWS and GUAM. Assist Advance Air Force as requested.

BLUE capital ships and aircraft carriers are the main objectives of all combatant forces before fleet engagement.

In general ORANGE was superior to BLUE in cruisers, destroyers and submarines, and inferior in battle line and air.

The ORANGE operations contemplated using the following advanced bases in the MANDATE ISLANDS - PELEWS, TRUK, ENIWETOK, RONGELAB, JALUIT and WOTJE, and GUAM after it had been seized.

On 20 November a warning dispatch was sent out which directed all forces to proceed to their stations, so that on the opening of the game at 0600 on 30 November we find the ORANGE Forces disposed as follows (Op. Diagram 1, 2):- The Battle Force at OKINAWA, the Striking Force concentrating at RONGELAB, the A.E.F. at TRUK, the Advance Air Force disposed at MARCUS ISLAND, WAKE ISLAND, TAONG ISLAND and JALUIT, the CHINA SEA Patrol patrolling in the CHINA SEA to protect ORANGE shipping, Subrons 3, 4 and 5 of the Striking Force at the BONIN ISLANDS and 12 SS of the Advance Submarine Force in HAWAIIAN waters, with 9 SS on a semi-circle to the westward of LAHAINA and 3 SS close in. The initial operations for the location and trailing of the BLUE Forces were under the direct command of the ORANGE C-in-C.

During the afternoon of 30 November the inner submarines of ORANGE heard the movements of a large BLUE force passing to the westward but, being kept down by the BLUE Air Patrol, were unable to observe the composition of the BLUE forces. This movement was reported to the ORANGE C-in-C after dark, and owing to the movement of the BLUE Forces to the westward of HAWAII a state of war was declared to exist. The 9 SS on the outer circle retired during the night on course West in order to be on the estimated maximum speed circle of BLUE at daylight. This movement of the ORANGE SS left the sector between South and Southwest uncovered, so that contact was lost with the BLUE Main Body and not regained for several days (Op. Diagram 5).

The initial phase of the war was completed with the ORANGE forces out of contact with BLUE, so that the next phase may be called the "period of uncertainty." During this period 5 XCL were sent from RONGELAB by the Commander Striking Force to scout

against the movement of BLUE to the Westward by the Great Circle course from HAWAII to the PHILIPPINES. No other scouting forces were sent out by the Striking Force. The Expeditionary Force sent a group to seize GUAM. The SS of the Advance Submarine Force opened out into two groups, one operating in a Northwesterly direction from HAWAII and the other in a Southwesterly direction. About 1100 on 2 December SS-34 and SS-35 contacted enemy submarines (these were BLUE subs from the HAWAIIAN station), but did not gain any knowledge of the BLUE Main Body. ORANGE shipping was proceeding unmolested in the CHINA SEA. Other ORANGE Forces remained in port. GUAM was captured and occupied on 3 December.

In the late afternoon of 2 December the C-in-C, being without further information of the movements of the BLUE Main Body, ordered the Commander Advance Submarine Force to have the 10 SS on his scouting line reverse their course on the 3rd and to scout in an easterly direction (Op. Diagram 8). Subdivs 18 and 19 formed a North/South scouting line in Latitude 16° - 25° N; Longitude 175° E. to cover arc between great circle course between HAWAII-JALUIT and HAWAII-LUZON. The 5 XCL continued their search in the area North of this. On the same date the C-in-C decided that the "BLUE forces had moved in the S.W. quadrant from HAWAII unobserved," and made plans to have the Commander Striking Force and the Air Force scout against the movement of the BLUE Forces across a line S.E. from JALUIT for a distance of 1200 miles.

On 3 December the southern submarine of the initial scouting group just missed making contact with the BLUE Main Body, so that at the end of that day the C-in-C was still without information of BLUE.

From the 3d of December to the 7th the ORANGE Forces were engaged in establishing a line of scouts from 30° North Latitude to JALUIT and for a distance of 1200 miles Southeast of there across which it would be impossible for the BLUE Forces to pass undetected. These operations required the use of 5 XCL, 8 SS, 8 CL, 4 CA and some 12 or 15 VP. The failure of the ORANGE submarines to maintain

contact with the BLUE Main Body caused a wide dispersion of the ORANGE scouting efforts. Quoting from the Critique: "It is believed, though, that the intense activity of small planes against the southernmost ORANGE Advance Subs in Move 2 and the exhaustive search of the Northern routes should have given ORANGE an inkling that BLUE was taking a southern route clear of ORANGE MANDATED ISLANDS and he could have disposed his forces more to advantage to meet an advance on the most logical southern route." (Op. Diagram 11).

At 1800, 7 December, ORANGE C-in-C sent following message to all Task Force Commanders: "BLUE Fleet not reported since 1700 30 November. This force will deny passage BLUE Fleet unobserved across line TORRES STRAIT to YOKOHAMA by patrolling and scouting while maintaining combatant forces in strategic positions ready for attack in order to locate BLUE Fleet should it attempt to cross guarded line."

"Battle Force proceed PELEWS. Striking Force guard TORRES STRAIT to NEW IRELAND and TRUK to GUAM; Advance Submarine Force guard NEW IRELAND to point 200 miles south of TRUK. Advance Air Force guard from TRUK to 200 miles South; Expeditionary Force guard GUAM to MAUC by planes and MAUC to PORT LLOYD by XAPs. Mine Force guard PORT LLOYD to 320 miles toward YOKOHAMA. Shore-based aircraft from OPAMA or KASUMIGURA guard from mainland to 200 miles toward PORT LLOYD."

"All patrols effective on line at 0600, 12 December. Maintain guard on present line through JALUIT until further orders; combatant forces not employed on patrol duty should be retired gradually according developments to insure maintaining strategic positions for attacking enemy when located. Radio and direction finder stations should be left in present positions and shall keep lookout for enemy. Operation No. 2 effective on receipt."

The CLS and the CAs on the scouting line S.E. of JALUIT used their planes to extend their area to the eastward during the day and retired to the westward during the night. The Striking Force

started retiring on PONAPE, sending the train to TRUK. The Battle Force and the CHINA SEA Patrol (having been relieved of their other duties) started concentrating on the PELEWS.

The lack of any plans for scouting by surface ships to back up the trailing operations of the ORANGE Advance Submarine Force was probably the cause of "the period of uncertainty" when the subs lost contact. Eventually a scouting plan for surface ships had to be made by the ORANGE C-in-C. It was suggested that the scouting operations might much better have been under the Commander Striking Force from the beginning in order to coordinate their activities with those of his force. At 0800, 8 December, the Advance Submarine and Advance Air Forces were placed under the Commander Striking Force.

At 0915, 8 December (Op. Diagrams 13,14) a plane from the CL-44, operating to the S.E. of JALUIT as part of that scouting line, reported sighting 3 BLUE DD and 1 BLUE CL before being shot down. From this report of contact the ORANGE C-in-C decided that he had located the BLUE Main Body and gave a definite position and course. Crudivs 7 and 9 concentrated by divisions and continued their aerial scouting, which was rather wide, considering the information from the first contact. A chance was lost here for the cruisers to do some trailing operations with planes that offered a good chance for success without being observed. Scouting operations are continued and the Striking Force is moving out in force to a position well ahead of the estimated course of advance of the BLUE Main Body.

A plane from ORANGE CA-37 at 0602, 10 December, reported sighting 6 BB, 1 CV, 2 more CA and several DD of BLUE, all on westerly courses. This was the most definite information of the BLUE Main Body since 30 November and served to clarify the situation in the minds of the ORANGE commanders. The ORANGE Striking Force now has 3 CC, 3 CV, 6 CA, 7 CL, 24 DL and 62 DD; also 5 SS in the same area as the BLUE Main Body. ORANGE makes plans for the first night attack on the BLUE Forces.

The game may now be considered as being in the third phase, or

"the period of attrition." During the scouting operations prior to the first night attack on 10-11 December, ORANGE lost 2 CL and 1 CA by aerial bombing attacks. (The gaining of information is costly; perhaps our methods of scouting once contact with the enemy has been made will have to be revised).

On the night 10-11 December the ORANGE forces were disposed as follows for attack: A North-South scouting line of 9 CL, followed by an attack group of 6 CA, to the westward a destroyer scouting line of 2 Desrons arranged in pairs with 2 attack groups of three Desrons each concentrated in the rear, all groups on course East, speed 25. (Op. Diagram 20, Tact. Diagram 3). At 1900 the BLUE forces changed course from West to South, so that the attacking groups had to change course to the southeastward when contact had finally been made, and came in the N.W. quadrant. The 6 CA succeeded in getting inside of the BLUE picket line about 0310, 11 December, were engaged with BLUE cruisers and destroyers, but finally had to retire when they came up against the BLUE BBs. During this night action of the cruisers they sank 2 BLUE DD, 3 CA and torpedoed 1 other CA. ORANGE lost 1 CA, had two torpedoed, besides some gun damage. This action took place in about Lat. 5° S., Long. 165° E.

Owing to the change of course of the BLUE forces, the destroyer attacking groups did not get into a position to attack until the night was so far advanced that the ORANGE Commander decided to withdraw them in order that they might be out of range of aerial attack at daylight. One desron was ordered to stand on into the attack. They were engaged with BLUE DD and CA, losing 8 DD, while the BLUE lost 4 DD sunk or sinking. The ORANGE destroyers on the scouting line were engaged with BLUE picket destroyers before they were forced to retire. The first night engagement ended without the main attack getting in to its objective.

On the morning of 11 December the ORANGE forces launched a plane attack on the BLUE Main Body (Op. Diagram 21). At about 0600, 80 VF, 40 VB with 1000 lb. bombs, 56 VT with torpedoes, 8 VT

with smoke making apparatus, and 8 VB for a scouting line took off from CV-2 and 4, having as their objective the BLUE BBs and CVS. During the early morning the ORANGE ships that had been crippled in the previous night engagement were sunk by attacks from BLUE planes. The BLUE submarines on the advance picket line were able to report the approach of the ORANGE air attack, and at 0730 BLUE launched 99 VF and 39 VS to oppose them. The BLUE BB opened out to 2000 yards distance and the destroyers made smoke. The ORANGE VT attack was made from the East, down wind, behind a smoke curtain and succeeded in hitting 1 BLUE BB with 3 torpedoes and 2 BB with 2 torpedoes each., BLUE CV-4 was also attacked and lost its flight deck. BLUE launched a counter attack of 40 VT armed with bombs that succeeded in destroying the flight decks of ORANGE CV-2 and 4. Owing to the loss of two of their flight decks the ORANGE planes tried to land on CV-3, but 20 VB, 12 VT and 4 VF were forced to land in the water and were lost.

It the critique it was stated: "It would appear that an ORANGE air attack from his CVs had but small chance of success commensurate with his possible losses unless it could be made under surprise conditions or when supported by shore-based aircraft. The chances of surprise were small. An opportunity of attacking later when supported by shore-based aircraft, and possibly with the BLUE Fleet carrier strength weakened by prior submarine and destroyer attacks, would most certainly occur. Lack of precise and recent information of the location of the BLUE Main Body forced many of the ORANGE planes to run out of fuel and be lost." The Commander ORANGE Air Forces (Captain McCrary) explained "that there was no particular objective in making the attack at this time other than they had absolute information of the position of BLUE at this time. For a successful air attack absolute information is necessary. There are two times considered the best for an air attack, one at dawn where the element of surprise enters, and the other late in the afternoon when the chances of counter attack are less, but you have to have information to make a successful attack at any time, and in this particular instance ORANGE had that information."

ORANGE forces other than the Striking Force are now concentrated in the PELEWS and TRUK (Op. Diagram 23). Nine ORANGE SS are now in the vicinity of the BLUE Formation. During the night of 11-12 December 1 SS gets inside the BLUE screen and sinks 1 CA and damages one other.

The 9 ORANGE SS that were operating in the vicinity of the BLUE formation were very successful in their operations during the daylight hours of 12 December. One BLUE CV received 3 torpedo hits, reducing her speed to 14 knots, and 1 BLUE CA was sunk. The following from the Critique should be noted: "The serious damage to the BLUE Fleet by this day's operations of the ORANGE submarines is noteworthy and indicates that if the ORANGE submarines had made contact sooner and been permitted to operate longer before the ORANGE air attack was made BLUE'S superiority might have been seriously reduced.The large vessels near the outer screen of the BLUE disposition CVs and CAs appear to be seriously exposed to submarine attack. They are good targets and necessarily are operating at low speeds without any or only a small A.S. screen."

During the night of 12-13 December the destroyers on the outer screen of the BLUE formation stopped for five minute periods at half-hour intervals to use their listening gear to detect the presence of enemy subs. As a consequence, 1 ORANGE SS was sunk by the A.S. attack group and the others kept submerged during the night so that they dropped astern of the BLUE formation.

ORANGE is now concentrating 10 SS, 1 group of 6 SS and 1 group of 4 SS, ahead of the advance of the BLUE Main Body (Op. Diagram 26). A force of 29 VPs is being concentrated at KAPINGAMARANGI ISLAND. The destroyers and cruisers are being fuelled at a rendezvous and at NOMOI ISLAND. The ORANGE CV-3 is now trying to gain a position in the rear of the BLUE formation, having made a wide detour to the Northward.

The ORANGE Mindivs of the CHINA SEA Patrol since their release from their other duties have been engaged in laying mines off the

entrance to MANILA BAY, in CORON BAY, in TAWI TAWI and in seeking information of the BLUE Asiatic Fleet. They finally made contact with the BLUE Forces off DUMANQUILAS, which they expected to mine, and suffered severe punishment from the BLUE DD to which they were inferior in fighting strength. The Battle Force is at anchor in the PELEWS.

There is now a lull in the activities of the ORANGE Striking Force owing to the refuelling operations, re-arrangement of divisions to take care of casualties and then a concentration of forces to the westward of the BLUE Main Body in order to make another night attack. (Note should be made that the ORANGE Battle Force is practically immobilized at this time by the lack of destroyers as an A.S. All of them are being used with the Striking Force).

On 15 December (Op. Diagram 27) the ORANGE subs were hampered in their observation and attacks on the BLUE Main Body by the activities of the BLUE planes and destroyers, who at frequent intervals sighted and bombed them. The ORANGE subs contacted the BLUE CV-2, but were kept down and were unable to make an attack. The ORANGE sent out a contact report, presumably to warn their own CV-3. Later on the ORANGE CCs-3 and 4 contacted the BLUE subs, but when the latter sent out a contact report the CCs were able to increase speed and escape. This sending out of contact reports by subs was done in conformity with the practice now holding in the BLUE Fleet. In the Critique it was held that the procedure was correct in the first case, but in the second instance "it would appear that the doctrine is not meant to apply in circumstances of this kind, or that it is wrong in itself."

The ORANGE CV-3 launched a bombing attack of 40 VT and VB against the BLUE CV-2, but they were driven off by 36 VF with about 50% casualties.

The ORANGE CCs were operating in the area ahead of the BLUE Main Body without an A.S. of destroyers. They were continually running afoul of the BLUE distant screen of subs to the Northward

of his formation. Finally, in the early morning of the 14th, CC-3 received two torpedo hits, reducing her speed to 16 knots.

ORANGE by early morning of the 14th has 7 SS astern of the BLUE Fleet and 8 SS ahead and to the Northward of it (Op. Diag. 30). The cruisers and destroyers are concentrating and moving to the westward ahead of the BLUE Fleet to get into position for attack. The two ORANGE CVs that have lost their flight decks are now being used as cruisers. The ORANGE Battle Force and Mindivs, with 3 subs and auxiliaries are concentrated at PELEWS. The maneuverability of the BLUE Fleet is now being hampered by the lead to the southward of the formation.

At daylight on 14 December the ORANGE VFs at KAMINGAMARINGI ISLAND were sent out to locate and attack the BLUE capital ships. They were divided into three groups of 10, 10 and 9 planes each and armed with 2-1000# bombs. One group was reported by a BLUE sub in the distant screen, so 30 VT were sent out from the BLUE carriers to stop them. The other two flights failed to make contact and were forced to return to their base. In the afternoon, 19 VT were sent out from KAMINGAMARINGI, but they failed to attain their objective.

In the discussion it was brought out that big bombers were never used in daylight operations during the world war by the Allies owing to the ease with which they were shot down by the German 2-seaters.

By 1800, 14 December, we find the ORANGE Striking Forces all ready for a major night offensive (Op. Diag. 31, 32; Tact. Diag. 9). Desron 1 (12 DD) is on a scouting line, about 230° -50°, interval 10 miles, with the attack groups 5 miles astern of the center of the line, there being 10 miles between the attack groups. The western group of 12 DL and 30 DD was led by 4 CA and 2 CL, the eastern group of 12 DL and 24 DD was led by 5 CL. All forces were on course 139°. The night was clear, with high visibility and a full moon, the wind force 5, and a moderate sea.

The general plan for the ORANGE forces was a massed attack with

The cruisers leading the advance to clear away the opposition of the BLUE screen for destroyers. About 2230 the ORANGE Scouting line of DDs made contact with BLUE pickets in the western section of the former's line. The attacking groups changed course to a south-westerly direction. The Western attack group, which came into action first, made the approach with the cruisers in the van followed by 3 desrons with the destroyers of each desron in two columns of six ships. The desrons were practically in a long column formation.

About 2330 the cruisers of the Western group came into contact with a BLUE picket destroyer in Sector II of their formation. The BLUE destroyer got off a contact report and illuminated the attacking group with star shells. Very shortly the ORANGE cruisers were engaged in a general melee with the BLUE cruisers. Searchlights and star shells were used by both sides. The impetus of the ORANGE cruiser advance soon brought them under the fire of the BLUE battleships. The van of the ORANGE attack group was crumpled up by the heavy punishment that they received and the following destroyers thrown into confusion. As the destroyers approached the BLUE battleships the half squadrons turned to the right and left to fire torpedoes. All of the torpedo firing by this group was done at the slow torpedo speed of 28 knots and most of the torpedoes were avoided by the enemy's turning away from the attack. After the destroyers of the Western group had made the attack they hauled off to the Northward to break off the engagement and to reload their torpedo tubes. While this group ~~was~~ succeeded in sinking or crippling the BLUE cruiser defense in this sector, their own casualties were much greater than they inflicted on the enemy, their own cruisers being practically wiped out and also about two-thirds of their destroyers. They had succeeded in opening a hole in the enemy's defense screen which was to be of assistance to the Eastern attack group which made an attack soon afterwards.

In making the attack the Eastern attack groups were formed on a North-South line of half-squadrons about 5000 yards apart and the

units in column. The cruisers were in southern portion of the line. The course was west. Each one of the cruisers sent up a VS plane with flares to search to the westward and northwestward and investigate the passage between TENCH ISLAND and NEW HANOVER. These planes were able to illuminate the BLUE BB with the flares. By 0030 this attack group came into action. The situation confronting this group was different from that with which the Western group came into contact. A hole had been made in the BLUE destroyer picket line and the heavy part of the ORANGE line, the 5 CL and the half-squadrons of DLs, came up against the BLUE cruiser defense of 3 CA and 1 CV. Furthermore, these BLUE cruisers were not up to full fighting strength, as they had received damage during the attack of the Western group.

While the ORANGE forces suffered heavy casualties, they were able to sink all of the BLUE CAs and the CV and clear the way for the surviving ORANGE DDs to attack the BLUE BBs. By 0129 the break through was complete and the ORANGE DDs are firing their torpedoes against the BBs. As the ORANGE DDs were to windward of the BLUE BBs, they were able to use smoke after they had fired their torpedoes to assist in getting away. Some of the ORANGE DDs stood on toward the south-westward until they came into contact with the BLUE train and inflicted heavy damage there. During this night engagement there were several ORANGE SSs inside the BLUE formation, which gave a good account of themselves by sinking some of the BLUE cruisers.

By 0150 the sky had become overcast and the visibility had become night normal. At times the battle area was covered with a thick pall of smoke from smoke screens, oil fires, funnel and gun gases, limiting the visibility of the ships within it to only 500 yards. Outside of this area the fight continued as the opposing forces came into contact with each other. By 0245 the most of the fight was over and the surviving ORANGE forces are withdrawing.

In these two attacks by the ORANGE forces, the first group suffered damage out of proportion to that they inflicted on the

enemy, while they were successful in opening holes in the enemy's defense; the second group was more successful in inflicting damage, probably due to the weakened opposition they met and the different manner in which they made the approach.

In comparing the losses suffered by the two forces in the night engagements of 10-11 and 14-15 December, we find the following:

<u>BLUE</u>	<u>ORANGE</u>
1 BB - sunk	- - - - -
2 BB - damaged, 10 kts. left.	- - - - -
8 CA - sunk or disabled.	7 CA - sunk or disabled.
4 CA - 10% to 50% damage.	- - - - -
3 CL - sunk or disabled.	7 CL - sunk or disabled
22 DD - " " "	57 DD - " " "
9 DD - 10% to 50% damage.	24 DL - " " "
1 CV - sunk	
1 DM, 2 AM, 2 AR, 1 AP - sunk	
86 planes lost	14 VS planes lost

The ORANGE forces are now equal in cruisers, still superior in submarines, but inferior in all other classes of ships to BLUE. In conducting attrition attacks it would seem that they have not been successful unless the enemy is damaged more than you are. There is a question as to whether ORANGE would use practically all of his destroyers in these attacks or not. The light forces of ORANGE are now so weakened that BLUE may expect that most of the ORANGE attacks will be by submarines. From the Critique we have: "Granted that night surface attack was decided on, there were two general courses of action open to ORANGE: the one which he adopted, of one massed assault to be made and pushed to ultimate conclusion; the other, which might be called a 'progressive whittling,' to be spread over many nights, designed to thin the screen preliminary to an assault. The latter might have been made with cruisers only, sent in in concentrated groups in succession - a few night attacks with varying intervals for a week or two. It would have the advantage of insuring superiority at few points of contact on many occasions and eventually of so thinning out the screen as to make an undetected assault against BBs easier The great danger for ORANGE in the preliminary whittling process is that cruisers might penetrate

too deeply and run against BB fire as the 6 ORANGE CA did on the night of 10-11 December. Shallow bites spread over many nights would be required. ORANGE has more cruisers than BLUE. The aggregate losses should be in ORANGE'S favor. This method would be wearing to the BLUE personnel, and conserve the ORANGE DDs until the assault."

During the two night actions 343 torpedoes were fired from cruisers, destroyers and submarines on both sides. 25 hits were made, or 7% of those which ran. In the night action of 14-15 December the ORANGE subs sank 1 BLUE CA, damaged 1 CL 80%, and made two torpedo hits on a BB. Some of the features of the second night action were the use of star shells by ORANGE to illuminate the target and also their being placed short of the enemy BBs to cut off their line of sight, and the use of flares dropped from planes to show up the enemy ships.

After the night action of 14-15 December, the ORANGE cruisers patrolling in the vicinity of NEW IRELAND were ordered to follow astern of BLUE Fleet and attack auxiliaries which might be proceeding eastward (Op. Diag. 34). The 18 VPs from KAPINGAMARANGI ISLAND were to rendezvous with an attack group at 0400 from CV-3 but arrived after carrier group had departed. About 0700 this group of planes attacked the BLUE BBs, damaging 1 BB 40% A.W. and 1 BB 24% U.W. Five of the VP were shot down by A.A. and the remaining 13 VP flew to TABAR ISLAND to rendezvous with the ORANGE CV-2. An attack group of 32 VF, 12 VB with 1000# bombs, and 18 VT with torpedoes, which should have coordinated with the VPs that left KAPINGAMARANGI, left the CV-3 at 0600 for the attack. This attack group was sighted by one of the BLUE A.S. planes and reported. BLUE launched a counter attack of 57 VF which engaged the ORANGE 32 VF. All of the ORANGE VF were destroyed, but in the meantime the VBs and the VTs attacked the enemy BBs and a CV, sinking the CV and making one torpedo hit on a BB. 3 VTs were shot down and 15 VT and 7 VB were forced to fly to TABAR ISLAND and intern, as the flight deck of the ORANGE CV-3 had been ruined in the meantime by a counter attack from the BLUE planes. At 0800 the

ORANGE CV-3 was attacked by 11 BLUE VB and 17 VT which ruined her flight deck, set her on fire and slowed her to 10 knots.

The operations in the area of the BLUE Fleet from here on were hampered by a hurricane. The game was called as of 1800, 16 December, with Move 28. The BLUE Fleet is now in about Lat. 1° S, Long. 147° E, and some 1600 or 1700 miles from DUMANQUILAS (Op. Diag. 36). The general disposition of the ORANGE Forces at the end was as follows: 6 BB, 1 CV, 4 CA-old, Minswediv 1, Netlaydiv 1 and Train at PELEWS; 6 XCL, 8 DD, 14 SS approaching PELEWS from BAKO; 4 DM south of MINDANAO, headed for PELEWS; 6 CL, 3 CC at WOLEAI with tanker; 2 DEsdivs and 1 DL, CV-4 and CV-3, 2 CL, headed for WOLEAI; 3 subs (46 SS) southeast of PELEWS headed for an attack on the BLUE Main Body; and 12 SS in the vicinity of the BLUE Main Body. ORANGE has now only 1 small CV undamaged as against 1 Large CV and 1 small CV of BLUE, and 150 planes of all types against 261 of BLUE. He can augment his air planes by 16 VP and 32 VT from home in 3 to 6 days.

A comparison of forces by types and number of those in war area shows the following:

Remaining undamaged	ORANGE	Lost	Damaged	Types	Remaining undamaged	BLUE	Lost	Damaged
7	:	:	:	Capital ships	7	1 BB	:	7 BB
1	:	:	2 CC	Carriers	2	2	:	:
4	:	7	1	Heavy Cruisers	2	9	:	4
6	:	9	2	Light Cruisers	5	3	:	1
12	:	79	3	Destroyers & DL	71	23	:	11
60	:	5	:	Submarines	21	:	:	:
13	:	3	:	Minelayers	3	1	:	:

A study of the operations of the ORANGE submarines brings out the following points: First, submarines cannot always be relied on to maintain contact with an enemy force in the early stages of their departure from a distant point; Second, after the general direction of the advance of the BLUE forces in the Western Pacific had been determined, ORANGE, with only about 16 SS operating in the vicinity of the BLUE Main Body, between the 12th and 16th of December, was able to inflict the following damage: 2 CA sunk, 1 CL 80% damage, 1 BB two torpedo hits, 1 CA two torpedo hits, 1 CA one torpedo hit, 1 CV three torpedo hits; and third, cruisers in a screening formation

with a slow speed convoy seem to be particularly susceptible to attack; perhaps they will have to patrol at speeds of 15 knots or more for their own protection. There is a possibility that if ORANGE had had the 3 subrons that were with the Battle Force at the PELEWS, located in a more central position such as TRUK, so that after the BLUE Main Body was definitely located on the 8th, they could be thrown across the line of the BLUE advance when BLUE was forced into a constricted area between the threat of a strong air attack from the MANDATE ISLANDS and NEW IRELAND, the casualties of BLUE would have been much greater. The attack by ORANGE surface vessels would probably have resulted in more damage being done than was received.

In the discussion following the Critique, the relief ORANGE C-in-C (Commander O. Smith, Rear Admiral Train having been detached early) made these remarks: "a circular formation is not a sure way for BLUE to get across the PACIFIC unhurt. As to the rules, he thinks a destroyer attack could get in without the terrific losses ORANGE suffered in this game. He thought the first mistake the ORANGE C-in-C made was in his plan; the decision called for locating and attacking the BLUE fleet leaving out reconnaissance, ORANGE made the attack regardless. After playing the game and seeing the mistakes made, thinks it is possible to make plans to offset these mistakes after they have been worked out. BBs cannot lay a barrage fire at night which will stop destroyers

SUMMARY - ORANGE

1. ORANGE used his Aviation Forces in assisting surface vessels in scouting operations; in scouting operations from the MANDATE ISLANDS; in making attacks from the carriers; in locating and illuminating ships with flares during a night attack; and in making attacks with bombers and torpedo planes from the MANDATE ISLANDS against the BLUE Main Body.

Planes were of great assistance in making contact with the enemy on 8 December and in developing his strength.

The first attack by ORANGE from his carriers on 11 December was made at a time when he had 3 CV in the vicinity of the BLUE Fleet as against 4 CV. ORANGE was decidedly inferior in the air. Result: 7 torpedo hits on 3 enemy BB and 1 CV damaged by bombs, losing flight deck; ORANGE lost the flight decks of 2 CV, or two-thirds of his air strength and a proportionate number of his planes, in the counter attack.

Three air attacks of VTs and VBs were sent out from KAPINGAMARANGI ISLAND. Only the third had any success, inflicting damage on 2 BLUE BB with bombs. At the time of this last attack, ORANGE CV-3 launched a plane bombing and torpedo attack, scoring 1 torpedo hit on a BLUE BB and sinking a damaged CV (CV-2) with bombs. The counter attack of BLUE damaged ORANGE CV-3 and ruined her flight deck.

In the attacks against enemy capital ships 1000# bombs were used.

Resulting air situation: ORANGE has lost 3 CV flight decks, and proportionate number of planes, most of the Island-based planes and has 1 small CV with Main Body at PELEWS; BLUE has lost 2 CV and planes, but has 2 CV (one large and one small) intact. Planes remaining of all types, ORANGE 150 or 32%; BLUE 261 or 42%. The ORANGE planes expended 9% of their heavy bombs and 20% of their small ones in attacks.

The carriers never used their main batteries while they were intact as carriers. 2 CV after losing their flight decks operated

as cruisers on a scouting line.

The ORANGE carriers operated in the vicinity of the enemy without a destroyer escort, but were protected by CCs. Planes were used as A.S. screen.

All of the air attacks by ORANGE were made under the condition of an inferior force attacking a superior one.

2. Torpedo hits were made by ORANGE Forces as follows:

	<u>No. fired</u>	<u>Hits</u>	<u>%</u>
Cruisers	33	2	7
Destroyers	271	10	4
Planes	82	8	10
Submarines	57	14	25

The above was during all of the operations. The results of the two night actions gave a total of 7% hits by all torpedoes fired on both sides by all classes of ships.

3. The following table shows the source of the damage to the BLUE ships. In some cases the damage came from more than one source, so that there is a certain amount of overlapping.

BLUE ships: sunk	Source					
	Des	Plane	Sub	Gun fire		
	Cru. torp.	torp.	torp.	bomb	corp.	
1 BB	:	1	:	:	:	:
2 CV	:	:	1	1	:	:
10 CA	::	:	:	:	3	7
3 CL	::	:	:	:	:	3
23 DD	:	1	:	:	:	22
1 DM	:	:	:	:	:	1
	:	:	:	:	:	:
BLUE ships: damaged	1	:	:	:	:	:
	:	:	:	:	:	:
1 BB	1	1	3	2	1	:
4 CA	1	:	:	:	2	1
1 CL	:	:	:	:	1	:
11 DD	:	:	:	:	:	11

ORANGE ships sunk								
7 CA	1(own)	2	:	3	:	2		<u>Misc.</u>
9 CL	:	2	:	2	:	5		
1 CM	:	1	:	:	:	:		
79 DD&DL	:	:	:	4	:	77	1 (ram)*	
5 SS	:	:	:	3	:	:	1 dep.ch.	
	:	:	:	:	:	:	1 min.fi.	
2 DM	:	:	:	2	:	:		

ORANGE ships: damaged :		Source							
		Cru. Torp:	Des. :	Plane :	Plane:	Sub. :	Gun :	Misc.	
		torp.:	torp.:	torp. :	bomb :	torp.:	fire :		
2 CC	:	:	:	1	:	1	:	1	:
3 CV	:	:	2	:	:	3	:	:	:
1 CA	:	:	1	:	:	:	:	1	:
2 CL	:	:	2	:	:	:	:	:	:
3 DD&DL	:	:	:	:	:	1	:	:	3

On the basis of the total life of the combatant forces involved, the percentage of damage received by each side from the various weapons is shown:

<u>ORANGE</u>		<u>BLUE</u>	
Torp.....	6%	Torp.	13%
Bombs.....	10%	Bombs	4%
Guns.....	27%	Guns	15%

ORANGE received his greatest damage from the sources in which he was weakest.

3. The BLUE dirigibles did not cause ORANGE much concern. ZR-5 was sighted and destroyed by planes from RONGELAB on 2 December. ZR-4 was sighted by ORANGE submarines and planes on 7 December. The reaction of this contact on ORANGE was to confirm him in his estimate that BLUE had not gone to the Northward but would pass to the Southward of the MANDATE ISLANDS. At this time the ZR was being used for distant scouting ahead of own Main Body. It was finally destroyed on 10 December by planes from the cruisers.

4. The ORANGE Cruiser Commanders considered that a high speed for cruisers is necessary in order that they may operate with destroyers and also to give them a higher sustained speed ratio to the battle lines so that they may occupy a new area more quickly. A maximum speed of 32.5 knots only gives a sustained (or formation) speed of 30 knots. In the second night attack 28 knots was used as the speed of the attack groups. If the cruisers had only has a maximum of 28 knots, then the speed of these attacking groups would have been reduced accordingly.

The principal sources of damage to the ORANGE cruisers were: (a) destroyer torpedoes; (b) bombs from planes; (c) gun fire from cruisers and capital ships; for BLUE cruisers the principal causes of damage were: (a) gun fire; (b) submarine torpedoes. ORANGE was acting on the tactical offensive and BLUE on the tactical defensive. ORANGE received a great deal of damage from BLUE destroyer torpedoes in the picket line when making night attacks and from bombing attacks on cruisers while on the scouting line. Once contact with the enemy has been made cruisers will have to remain outside of range for air attack. BLUE suffered heavy casualties among his cruisers from submarine torpedoes due to the slow speed of the convoy. Cruisers in the outer screen will either have to have an A.S. screen of destroyers or else patrol at higher speeds than the fleet speed for self-protection.

ORANGE suffered much damage and loss of crippled units by bombing attacks on ships that could not get out of range before daylight after a night engagement.

5. Owing to the distance from their bases at which the ORANGE Forces began to operate against BLUE, it was necessary to refuel after each intensive operation. After the night engagement of 10-11 December the cruisers refueled at NOMOI ISLAND and the destroyers from the tankers at sea. Refueling was necessary after the night action of 14-15 December. ORANGE made use of the MANDATE ISLANDS as bases for his tankers and for refueling operations.

No ammunition replacement was necessary by the ORANGE forces or by their cruisers. Owing to the intensity of their attack they were either sunk or came out of the engagement with more than 50% of their ammunition still unexpended. On the other hand the BLUE cruisers that had to stand off the attacking forces during the night engagements expended all or a very large percentage of their ammunition. At the time the game was called BLUE had been unable to effect a re-distribution of ammunition, owing to the heavy seas.

6. In the night action of 10-11 December, the ORANGE cruisers in turning away from the BB gun fire turned toward their own destroyers that were coming in to attack. They should turn away from their own forces as well as the enemy in order to avoid confusion.

7. The failure of ORANGE SS to regain contact after the BLUE Fleet's departure was due to the desire to keep the SS ahead of BLUE, to the conviction of the ORANGE C-in-C that BLUE would take a northerly course, and to his attempt to direct details of operations 6000 miles away and to using only 12 out of 20 SS available. The failure of the ORANGE SS to trail resulted in an enormous waste of scouting effort during the first eight days of BLUE'S movement. Submarines cannot be relied on for tracking unless large numbers are used.

8. The repeated contacts of ORANGE with BLUE between the 8th and the 10th of December caused BLUE to make a radical change of course after dark on the night of 10-11 December, with the result that the first destroyer attack had to be called off before it had reached its objective.

9. Many of the attacks by ORANGE forces were reported to the BLUE Main Body in advance by the BLUE submarines acting as a distant screen on the flank in the direction of the enemy's probable attack.

10. ORANGE used very few submarines, in proportion to the number that he had available, in making attrition attacks prior to his attacks by surface craft.

11. ORANGE used practically his entire fleet except his BBs and even stripping his BBs of destroyers as an A.S. screen in his attacks on BLUE at some distance from their bases.

12. While BLUE was seriously damaged, it is considered that, due to the very large losses of ORANGE, these night attacks were not a profitable undertaking in the form in which made. Attrition attacks that do not inflict a greater proportion of damage than is received in return cannot be said to be successful.

Pertinent Diagrams - ORANGE

Diagram	1	
	2	
	5	
	8	Scouting Operatings O-subs - 3 Dec.
	11	
	13	First Contact - 8 Dec.
	14	
	20	Night action - 10-11 Dec.
Tact. Diagram	3	Night action - 10-11 Dec.
Op. "	21	(11-12 Dec.)
	26	(12-13 Dec.)
	27	(13 Dec.)
	30	(14 Dec.)
	31)	(14-15 Dec.)
	32)	
Tact. Diag.	9	Night action - 14-15 Dec.
Op. Diag.	36	