

NAVAL AVIATION

NEWS



Naval Air Victory
Wildcat Factograph
New Portable Pool

Oct. 1, 1945

RESTRICTED





"Carrier supremacy defeated Japan"

U.S. Navy

[Excerpts from a statement by Vice Admiral
Marc A. Mitscher]



JAPAN is beaten, and carrier supremacy defeated her. Carrier supremacy destroyed her army and navy air forces. Carrier supremacy destroyed her fleet. Carrier supremacy gave us bases adjacent to her home islands. And carrier supremacy finally left her exposed to the most devastating sky attack—the atomic fission bomb—that man has suffered.

From the day that carrier supremacy passed definitely to our hands, Japan was beaten. And before then, carrier airpower saved U.S. and Australia from invasion. . . .

Carrier supremacy demolished the island air bases and eliminated the air force which was using them. Carrier supremacy made the island naval bases untenable for such shipping as escaped our subs. Carrier supremacy permitted us to give close, tactical

air support to the troops who stormed the island fortresses. . . .

When I say carrier supremacy defeated Japan, I do not mean that airpower by itself won the Battle of the Pacific. We exercised our carrier supremacy as a part of a balanced, integrated air-surface-ground team, in which all hands may be proud of the roles assigned them, and of the way in which their duties were discharged. This could not have been done by a separate air force, exclusively based ashore, or by one not under direct Navy control. . . .

In the Battle of the Pacific, carrier airpower has been a unique weapon in a unique war. It was the decisive factor. For carrier supremacy destroyed the enemy's air forces and his fleet. It accelerated the course of the war. It gave us bases for our final assault which, while it was still only in the preliminary air stage, forced the enemy's offer of surrender.

NAVAL



AIR POWER

PACKED VICTORY PUNCH

AIR POWER and a supremacy in carrier operations defeated Japan—the first major nation in history to surrender without a hostile invasion of its homeland. Planes destroyed her air forces and her fleet. They crippled her communications, cut off shipping, smashed military installations and brought Japan to its knees.

The part that U.S. Naval Aviation played is highlighted in the following pages. No war is won by one branch of the service alone but in no war has victory been swung so largely as by naval air power in World War II. Planes were the Navy's Sunday punch.

Carrier air power stopped the Jap westward invasion at Midway and to the south at Coral Sea. Air Power picked the big targets and crushed them. Six out of the 12 Japanese battleships sunk were disposed of by naval aircraft. Nine out of 15 aircraft carriers fell victim to aerial bombs and torpedoes, with "assists" made on 2 others. Planes sank 7 Jap heavy cruisers during the war, one old CA, 7 light cruisers, 45 destroyers and 12 submarines—a total of 87 major warships. Navy carrier and land-based aircraft destroyed an estimated 9769 Jap planes in aerial combat and 5337 more on the ground.

DEC. 7

Pearl Harbor Attack



CAPTURED JAP PICTURE SHOWS PLANES TAKING OFF FOR PEARL

MORE than 150 Jap fighters and bombers made NAS Ford Island their objective when they swept in out of the west on December 7, 1941, to knock out American fleet and airpower to start World War II in the Pacific.

Coming in at minimum altitude, they strafed planes and crews on the ground or in the water, inflicting heavy casualties. The seaplane launching ramp was wrecked, as was the hangar. Jap planes returned to strafe again and again, turning their attention to NAS KANEHOE and the Marine Corps field at Ewa after they had neutralized Ford Island. Some damage to Ford Island resulted from bombs

and bullets intended for heavy fleet units around the island.

The Japs expected to catch one or more of the Navy's aircraft carriers in the harbor—captured maps prepared on spies' notes showed the *Enterprise* was among the "targets" they expected to find. The *BIG E* however, was at sea after ferrying planes to advanced bases. A storm caused Admiral Halsey to slow down his task force so that it was not in port on the fateful Sunday.

Some of her planes, when news of the attack reached the carrier, sought vainly to find the Jap carriers. Some, attempting to land at Ford Island, were fired on. Four squadrons of *Catalinas* were burned by the Jap attackers. Not many landplanes were present, but these were strafed. Most Navy planes left undamaged were unfit for combat.

Another reason for the Japs failure to cripple the U.S. carrier fleet was the fact that some were in the Atlantic Ocean since submarine warfare was active, or were on the high seas elsewhere in the world.

The cost to the Japanese of this attack has never been known exactly. Navy fighter planes and anti-aircraft fire brought down 28 enemy aircraft. A cruiser scout plane shot down one Jap. Naval Aviation faced a big task after Dec. 7.





TERRIBLE FLYING CONDITIONS, SUCH AS THIS CATALINA BUCKS IN TRYING TO TAKE OFF, HAMPERED AERIAL WORK IN ALEUTIANS

WAKE ISLAND-ALASKA

A FEW hours after the Pearl Harbor attack the Japs began hammering at Wake Island and its tiny Marine garrison including 12 *Wildcats*, 11 of which the Japanese knocked out in short order. Before the island surrendered on December 23 its planes and guns sank two destroyers and a cruiser.

Naval Aviation also played a part in turning back the Japanese invasion of North America through the Aleutians. That stern and fogbound coast saw some of the weirdest

flying weather ever faced by naval aviators. The job was one for the *Catalinas* and *PV's* and both planes helped drive the Japs back from Kiska and Attu and to hammer until war's end at their Kurile island chain with bombs and rockets.

Never was flying more difficult than in the Alaskan theater with its continuous bad weather and high winds. Carrier operations were next to impossible so the Navy's air activities mostly were land-based. An escort carrier provided air cover for the Attu recapture. *PATWING 4* squadrons operating in Alaska flew long patrols keeping the Japs under observation but got few chances at actual combat. *NATS* planes flew millions of miles in support of Alaskan operations.



Raiding Navy planes ran wild over Wake Island on Oct. 5-6, 1943, shooting up ground installations and all Jap aircraft to be found

◀ Wreckage-strewn hangar area at Ford Island on December 7, 1941, the first target of planes from six Japanese carriers off Hawaii

Battle of

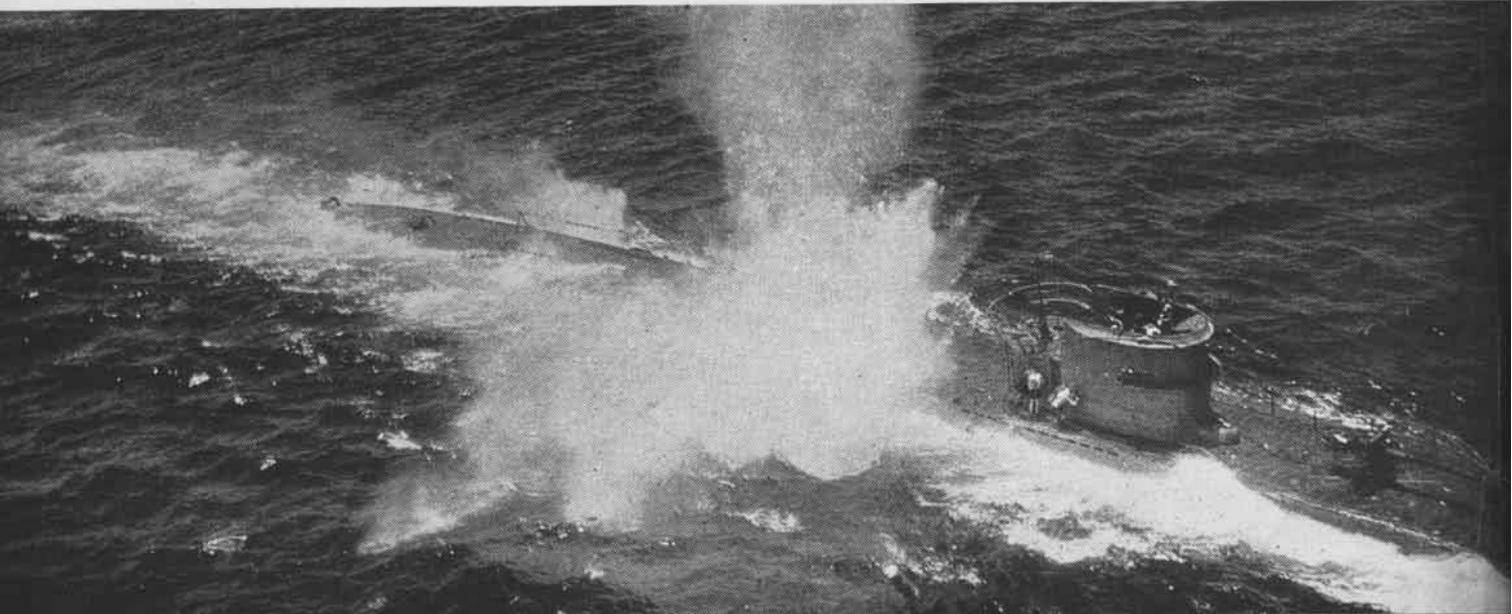


SBD'S OFF RANGER, OPERATING WITH BRITISH FLEET, RAID GERMAN SHIPPING OFF NORWAY AND PROTECT MURMANSK CONVOYS



WASP FERRIES BRITISH SPITFIRES TO BOLSTER MALTA DEFENSE

U-BOAT CREW SCURRIES TO ESCAPE DEPTH BOMB ABOUT TO HIT



The Atlantic

ALTHOUGH the major victories of Naval Aviation were in the Pacific theater, Navy fighters, bombers and scout planes operating off carriers or land bases were busy everywhere in the Battle of the Atlantic. They flew from the Murmansk convoy run to the South Atlantic, using Brazil and Azores bases as well as those along the African coast.

Anti-submarine warfare led to the jeep carrier, and this new weapon was a large factor in killing the u-boat menace. Navy planes shot down many French fighters and attacked ground defenses in the North Africa invasion. They followed this up by giving close air support to the Southern France invasion, where aircraft rockets made their first big-time debut strafing German transportation heading south.

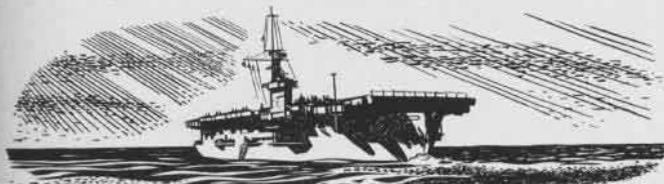


TULAGI'S F6F'S CARRIED ROCKETS WITH 60-LB. BRITISH HEAD

AMERICAN carriers ferried planes to British bases like Malta and even operated with the British fleet against German bases in Norway. But the little escort carrier with its *Wildcats* and *TBF's* were the brightest spot in the Atlantic picture. When *cve's* began operating the wolf-packs took heavy losses and sank few ships in convoys.

Navy patrol planes escorted the convoys when they neared land on this side of the Atlantic and flew countless hours of anti-submarine patrols up and down the North and South American coastlines, aided by blimps. Navy *Liberators* helped crack the u-boat menace in Bay of Biscay.

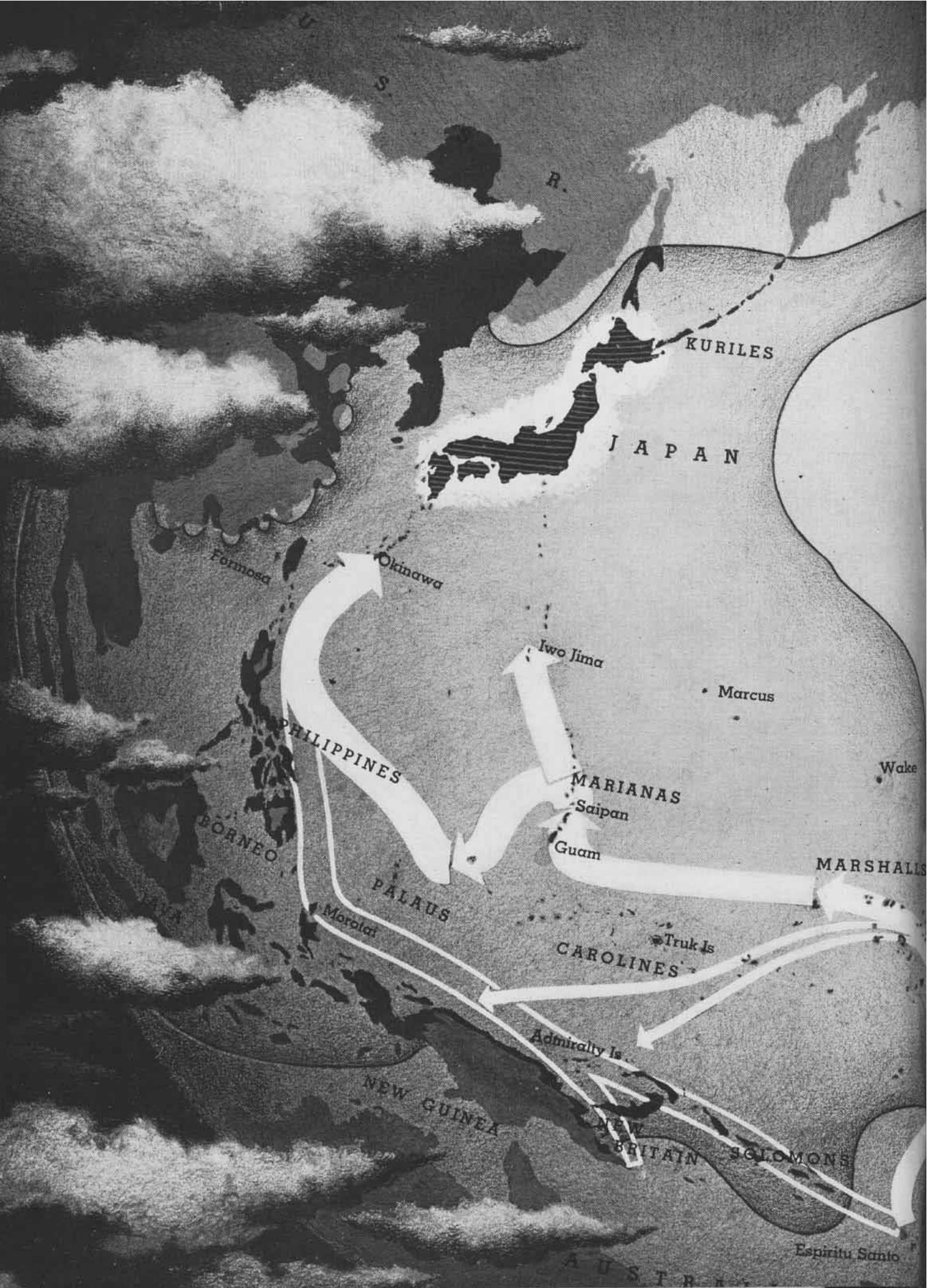
Due to proximity of land bases, Navy planes on carriers did not operate in the European invasion, at Normandy.



Restricted



Rocket-firing *Hellcat* bags a Nazi train in Southern France invasion. U.S.S. *Tulagi* helped soften up communications of Germans



Midway Coral Sea

AFTER the Java Sea defeats, U. S. carrier forces under Vice Admiral Halsey went on the offensive, raiding the Marshalls and Gilberts. This was followed up by carrier strikes on Rabaul, Marcus and Tokyo itself, the latter by Army B-25's.

Then came two brilliant carrier victories—Coral Sea and Midway—two sea actions in which neither fleet fired a shot at the other's ships. The Coral Sea battle stopped the Jap invasion tentacle aimed at Australia. *Lexington* and *Yorktown* planes sank Jap carrier *Shoho* and both were damaged in return. The *Lex* finally was sunk. The five-day battle of air power cost the



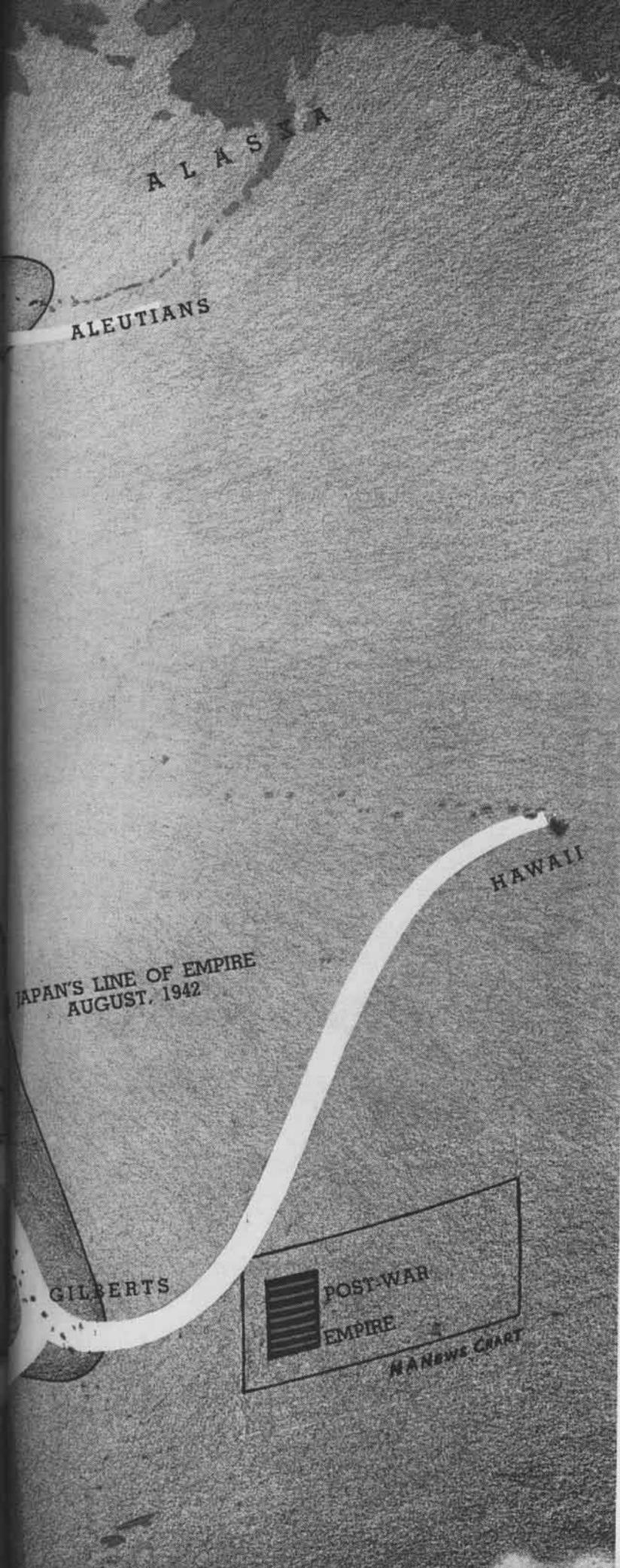
PLANES LICKED JAPS AT CORAL SEA BUT LOST LEX

Japs a carrier, two destroyers and 104 planes. Another carrier was seriously damaged.

A month later Naval Aviation dealt a stunning defeat to a Jap invasion thrust at Hawaii. Midway cost the Japs four carriers, including 275 planes, and possibly three battleships damaged, two heavy cruisers sunk and three damaged, three destroyers sunk and four transports and cargo ships hit.

The Navy lost the *Yorktown*, a destroyer and 150 planes. The first night torpedo attack of the war helped turn the Jap invasion armada. Land-based Marine and Army planes had a hand in the slaughter. Torpedo Eight off the *Hornet* made history by its heroic attack on the enemy carriers. It was annihilated but got several hits.

The crippled Jap fleets fled for home, marking the end of Jap expansion. Midway was their Navy's first decisive defeat in 350 years. It ended the threat to Hawaii and the U. S. West Coast.



◀ Shore-based air power pushed up path of outline arrow; carrier-based planes spearheaded the other route

AUG. 1942

The Solomons



MCCAIN

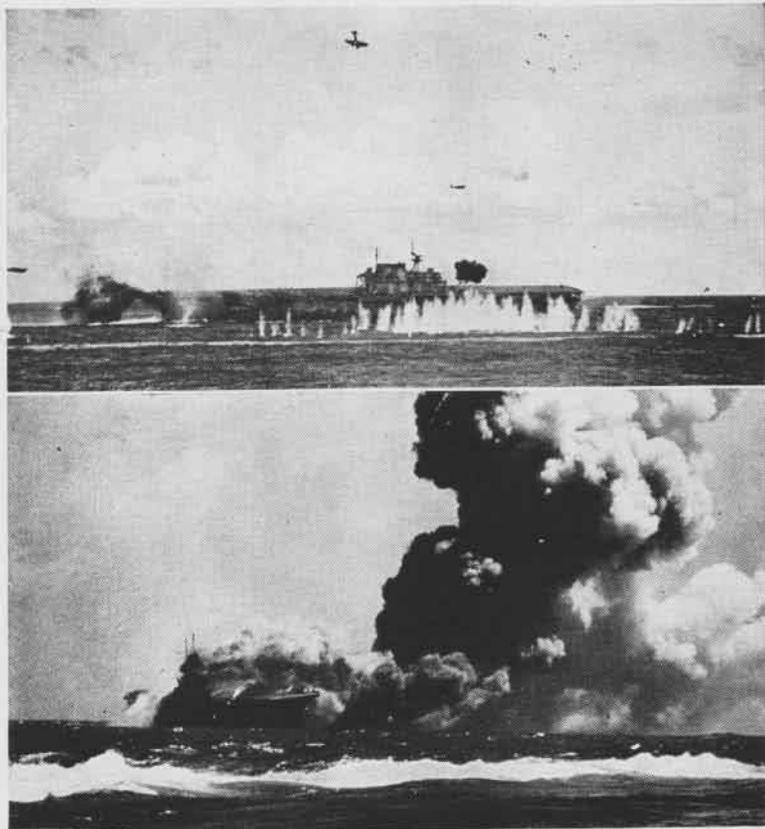
THE CARRIER victory at Coral Sea blunted Jap sea power and helped set the stage for recapture of the vital Solomons. Invasion of Guadalcanal started on August 7, 1942 under carrier plane cover. When the flattops had to withdraw to refuel, a Jap naval force sank four cruisers off Savo Island in a night action. The fight to hold Guadalcanal resolved into a series of naval and air battles to stop Jap reinforcements and surface task forces. The battle of the eastern Solomons, spear-

headed by the *Enterprise* and *Saratoga* almost stripped the Japs of their carrier support. The *Enterprise* sustained damage and a few weeks later the *Wasp* was sunk by a sub while escorting a convoy.

Air strips on Guadalcanal gave Marine squadrons bases from which to support the hard-pressed Fleet in its nip-and-tuck battle to keep the Solomons island foothold. In the battle of Santa Cruz island on October 26, the *Hornet* was sunk and two enemy carriers put out of action. Our carrier strength was at an all-time low. Fate of Henderson field hung in the balance. Desperate air battles beat back Jap raiders and landplanes hammered enemy fleet units. The *BV Hiyei* was sunk off Savo Island by planes and surface ships.

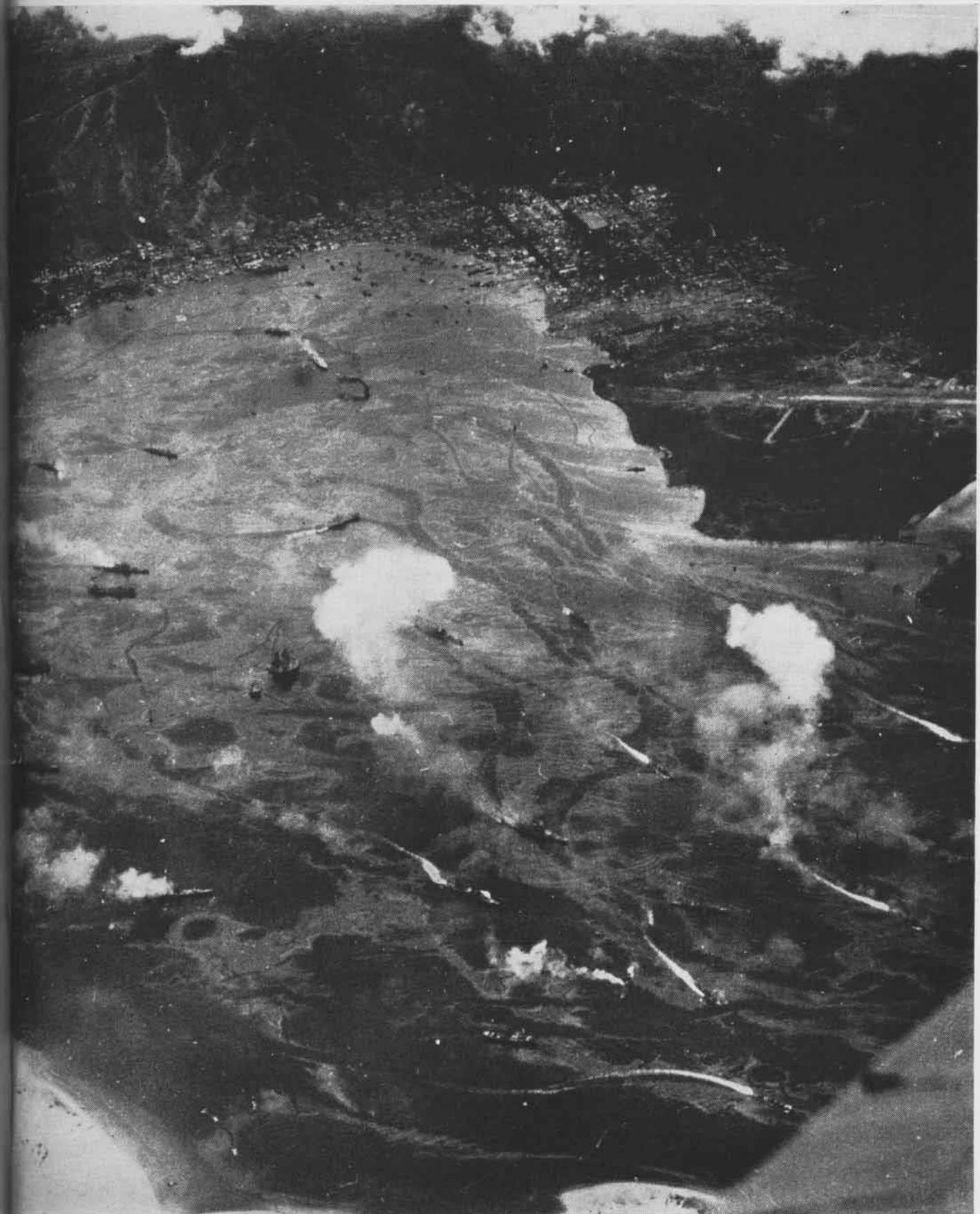
A desperate attempt to bolster Japs on the island was routed on November 14, when heavy air attacks sank six transports and damaged six more. The Battle of Guadalcanal was a decisive victory for U.S. aviation and sea forces and was followed up by capture of New Georgia and Bougainville bases after heavy air assaults.

In one air battle over Guadalcanal 107 Jap bombers and fighters were shot down at a cost of only six U.S. fighters. Later they lost 350 planes to our 93 in the month-long Munda campaign. The Solomons secured, Fleet carriers turned their attention to the strong Jap base at Rabaul and hammered it repeatedly, inflicting heavy damage on it.



HORNET (ABOVE) TAKES KAMIKAZE: TORPEDO HIT DOOMS WASP (BELOW)

Ground crews prepare Marine Wildcats on Henderson field for action as Army B-17's head out on a mission



Two carrier-borne strikes against Japan's key position at Rabaul netted excellent results in November 1942. Both times the raiding planes found the harbor full of enemy

shipping and had a field day shooting up the ships and bagging a good share of planes. The first strike inflicted heavy damage to enemy heavy cruisers and de-

stroyers, which can be seen dodging around the compact harbor in picture above. Raiders shot down 49 Jap aircraft in two strikes, at a cost of 10 of our planes.

NOV. 1943



FIVE-INCH SHELL FROM CARRIER SCORES DIRECT HIT ON JAP TORPEDO BOMBER MAKING FUTILE ATTACK OFF KWAJALEIN ISLAND

The Gilberts and Marshalls Campaign

TWO MONTHS after Pearl Harbor the first carrier raid was made on the Marshalls and Gilbert Islands. These were feints while the real blows were being readied in the Solomons area. It was not until November 1943, that the Navy was ready to capture those stepping stones to Tokyo.

After three months of softening up raids by carrier planes the assault on Tarawa and Makin islands was launched. Before those Gilbert strongholds were captured many Marines were to die. Enemy submarines sank the *Liscome Bay*, a CVE, off Makin. Carrier planes drove off all Jap air raids on the invasion forces and flew close air support missions against ground targets, besides hammering neighboring islands like Wotje and Nauru. The Navy never did bother to capture these but sent occasional land-based

planes to raid and harass them up to the end of the war.

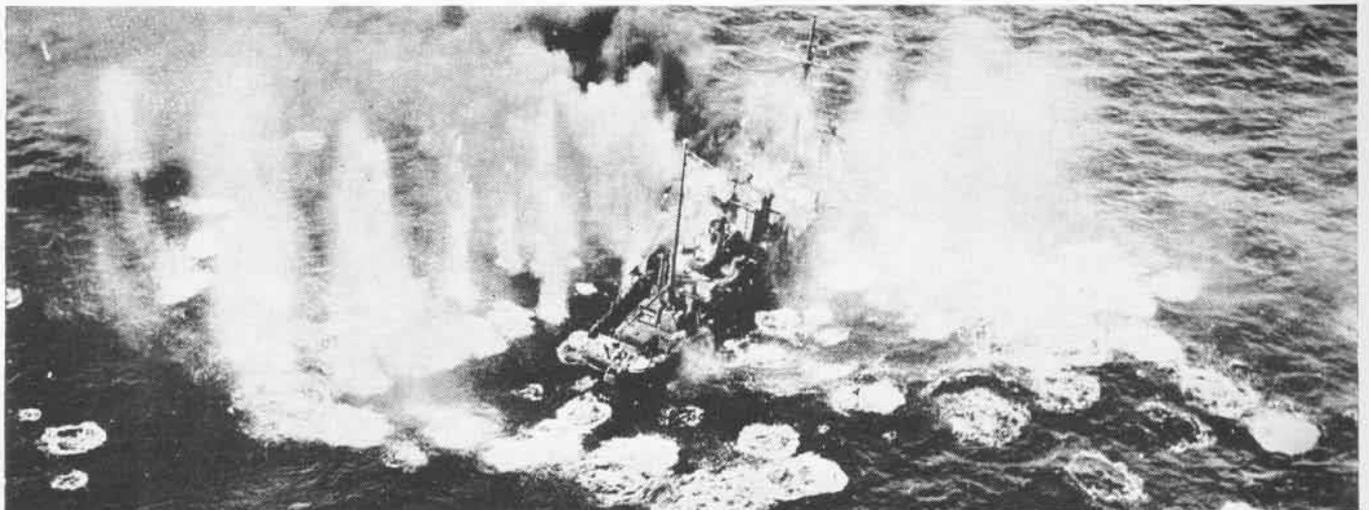
In January the biggest amphibious operations thus far were launched against the Marshall Islands. Carrier raids smashed Kwajalein, Roi, Taroa and Wotje and shore-based planes hammered those islands, plus Jaluit and Mili. A few weeks after key Marshall islands were captured, carrier planes attacked the Jap stronghold at Truk, inflicting heavy damage to ships and planes. This attack, which was delivered with devastating effect, was particularly satisfying as it was a partial payment for Pearl Harbor.

In February, following repeated aerial bombings, Engebi island was captured, then the rest of Eniwetok Atoll, giving U.S. control of the former German islands in the central Pacific. These bases made excellent stopping places across the long Pacific haul.

Keeping Jap defenses in the Pacific continually on the defensive, the Navy sent a carrier force to raid Saipan, Guam and Tinian in the Marianas. Although detected by enemy search planes, it suffered no damage and continued to strike its objective. Several Jap ships were sunk and damaged, and about 30 enemy planes shot down, 85 damaged aground.



SPRUANCE



JAP FREIGHTER OFF MARSHALLS GETS TERRIFIC STRAFING FROM CARRIER PLANES CLEARING THE OCEAN OF ALL ENEMY SHIPPING



JAP CREWMEN CLIMB OFF OILER SUNK BY PLANES OFF SAIPAN



BURNING JAP PLANES ON TINIAN AIRFIELD MAKE NICE PICTURE

JUNE 1944 *Mariana Islands*



McCAMPBELL

BEFORE Naval Aviation turned its attention to the task of supporting the Marianas invasion its fast carrier task force was used to neutralize enemy positions in the western Carolines. These attacks protected our ground forces which were seizing new bases in the Admiralties and Emirau and also furnished close support for the landing operations.

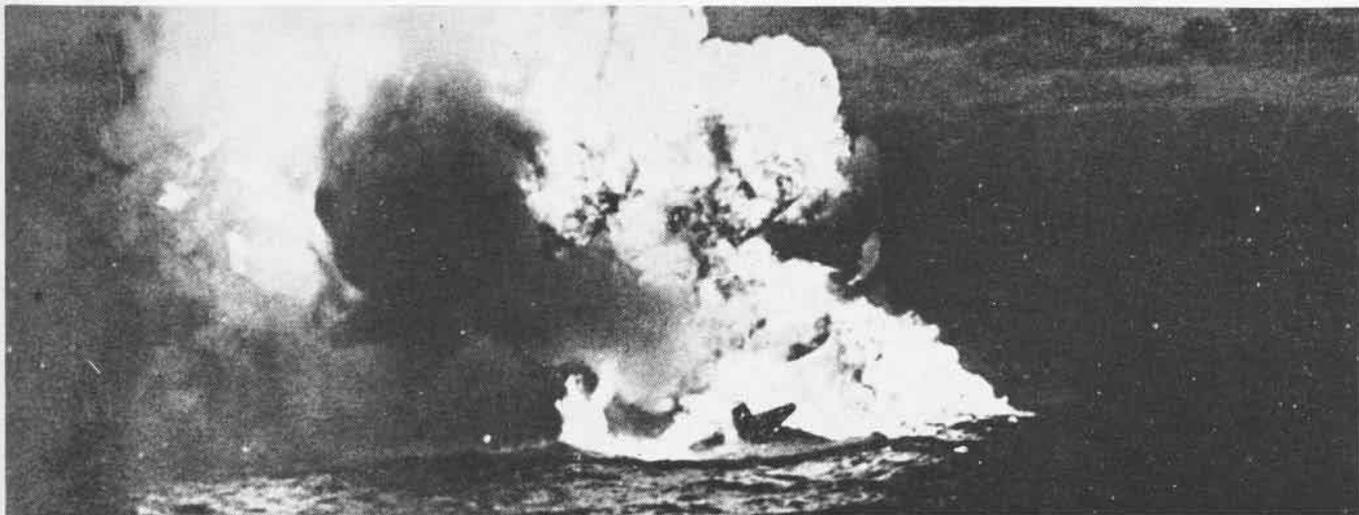
Strikes at Palau, Yap and Ulithi in March and April of 1944 netted three destroyers, 17 freighters. Fighters and bombers overcame enemy air power, shooting down 114 and destroying 46 on the ground. Later in April carriers launched strikes against New Guinea airstrips around Hollandia. Heavy raids against Truk installations destroyed 60 planes on the ground and 63 in the air.

With these operations as a preliminary, the main invasion spearhead then landed in the Marianas. During the summer of 1944 Saipan, Guam and Tinian islands were captured.

When the Japs saw the U. S. meant business about capturing the Marianas, they dispatched their fleet to chop up the invasion forces, precipitating the First Battle of the Philippine Sea. As the fast carriers headed west to meet the Japs other carriers smashed Iwo and Chichi Jima to protect them from aerial attacks from their northern flank.

The now-famous Marianas Turkey Shoot came on June 19 when an aerial armada decimated waves of Jap planes over Guam, or trying to attack the Fleet. That day 402 enemy aircraft were destroyed out of 545 seen, as against only 17 American planes. With the enemy air strength broken, the U. S. Fleet headed west to locate the Jap surface fleet.

HEAVY strikes of carrier planes went out at sunset and crushed the oncoming Japs, sinking two carriers and damaging three others, plus other ships sunk or damaged. Running out of gas on the return trip to their carriers, U.S. planes had to land in the water and 73 planes were lost in the dark. Carriers turned on their lights to aid landings.



THIS IS ONE OF THE 402 JAP PLANES SHOT DOWN IN THE NOW-FAMOUS MARIANAS TURKEY SHOOT AS FOE HIT AT INVASION FLEET

SEPT. 1944



▶ MARINE CORSAIR CREMATES STUBBORN JAPS IN PELELIU CAVES

WASP, YORKTOWN, HORNET, HANCOCK, BIG T, LEX AT ULITHI ▶



Capture of Caroline Islands

THE ORIGINAL heavy attacks on Jap strongholds in the Carolines were made as a preliminary to capture of the Marianas, to protect the southern flank from air attack. Before and during the Marianas campaign, naval units protected and aided army troops occupying Wakde and Biak. No carriers were used, however, as they had been at Hollandia.

As soon as Guam and Saipan were secured, the Navy opened up on the Carolines to clear the path to eventual invasion of the Philippines, the next big objective. Nearly 800 vessels under Admiral Halsey participated. Prior to the landings at Peleliu and Angaur, widespread air strikes were made to destroy Jap air strength at Truk and the Bonins.

Three days of raids destroyed 46 planes and sank six ships in the Bonins while other planes were raiding Yap. Other fast carriers attacked the Palau islands, concentrating on ammunition dumps, supply warehouses and barracks. Still

the Philippines. An air strip on one of the islands provided a base for Marine fliers who flew neutralization against Yap and other Jap-held islands.

After providing support at Palau the Third Fleet fast carrier task force returned to the attack on enemy power in the Philippines. From waters to the east, they conducted the first carrier attack of the war on Manila and Luzon. Sweeping down on the harbor, they inflicted severe damage on the Japs. On September 24 they struck the central Philippines and completed photographic coverage of the area of Leyte and Samar where amphibious landings were slated. The Third Fleet's air strikes disclosed the relative weakness of enemy air opposition in the central Philippines.

At the time when the Navy was poised for the Philippines thrust, Naval Aviation had 34,000 planes and 47,000 pilots available. Seventy of the 100 aircraft carriers had been built in the preceding year and had sustained little damage up



WRECKAGE OF JAP OIL TANKS AND DUBLON TOWN IN TRUK ATOLL SHOWS HEAVY DAMAGE DONE BY RAIDING PLANES FROM CARRIERS

more of the vast carrier fleet hammered Jap airfields on Mindanao. Lacking opposition there they attacked the Visayas, destroying 75 planes in the air and 123 on the ground. Escort carriers went in with the Morotai landings but met little opposition.

In support of landings at Morotai, carrier planes attacked Mindanao, the Celebes and Talaud in mid-September, at which time the invasion waves swept over Peleliu beaches. Carrier sweeps prevented enemy aircraft from reaching the island on D-day.

In the Palau islands, with the Japs resisting fanatically from caves, the theory of close air support was given vigorous test. Planes operating from air fields within sight of the Jap strong points helped ground troops blast them out.

The well-sheltered lagoon at Ulithi, captured without opposition, became the refueling and supply point for the Third and Fifth Fleets during subsequent operations against

to then from the aerial attacks launched by the Japanese.

Before launching the Philippines invasion, however, the versatile fast carrier task force smashed at the Ryukyu islands to get data on Jap defensive strength and to destroy planes and ships that might hinder the invasion. With long-range search planes and submarines running interference, they hit the Ryukyu area in mid-October and in six days shot down 296 Jap planes over the task force and 269 over the target areas, plus 350 destroyed on the ground. A heavy toll also was taken of enemy shipping, with 312 ships sunk or damaged. Formosa and Pescadores also were targets in the smashing raids.

Following repeated carrier sweeps and strikes over Formosa and northern central Luzon to keep enemy air strength neutralized, the invasion of the Philippines was begun on October 20 under protection of a vast air cover that kept Jap planes away and gave direct support to troops.

OCT. 1944

The Philippines



HALSEY

AFTER fast carrier task forces had smashed Jap airpower in the Bonins, Ryukyus and Philippine bases, invasion troops landed on Leyte with Third Fleet planes bombing and strafing beaches and interior areas on Leyte in direct support. The Japanese fleet, in hiding since its crushing defeat by carrier planes in the First Battle of the Philippines sea, challenged the invasion.

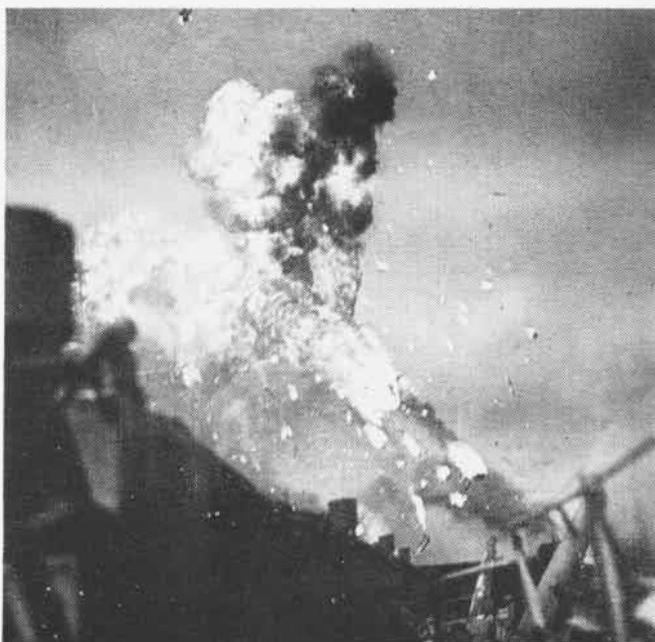
Three days after D-day a series of major surface and air engagements took place—the battle for Leyte Gulf, which divided into the battles of Surigao strait, off Samar and off Cape Engano. Air power played a heavy part in defeating this three-pronged blow at the invasion.

Most spectacular of the three from an aviation standpoint was that off Samar on October 25. Third Fleet carrier planes sank the new battleship *Musashi*, one cruiser and a destroyer and damaged the *Yamato*, but the Jap force kept coming into San Bernardino strait and met a group of escort carriers in a running fight toward Leyte Gulf. The six CVE's had only seven DD's and DE's to escort them. After two and a half hours of terrific shelling from the heavy Jap units the enemy retreated after losing two heavy cruisers and two destroyers to U.S. carrier planes.

The escort carrier *Gambier Bay* was sunk by enemy shelling and hits were sustained by the *Suwanee*, *Santee*, *White Plains* and *Kitkun Bay*. Enemy dive bombers sank the *Saint Lo* on the 25th. The carriers lost 105 planes.

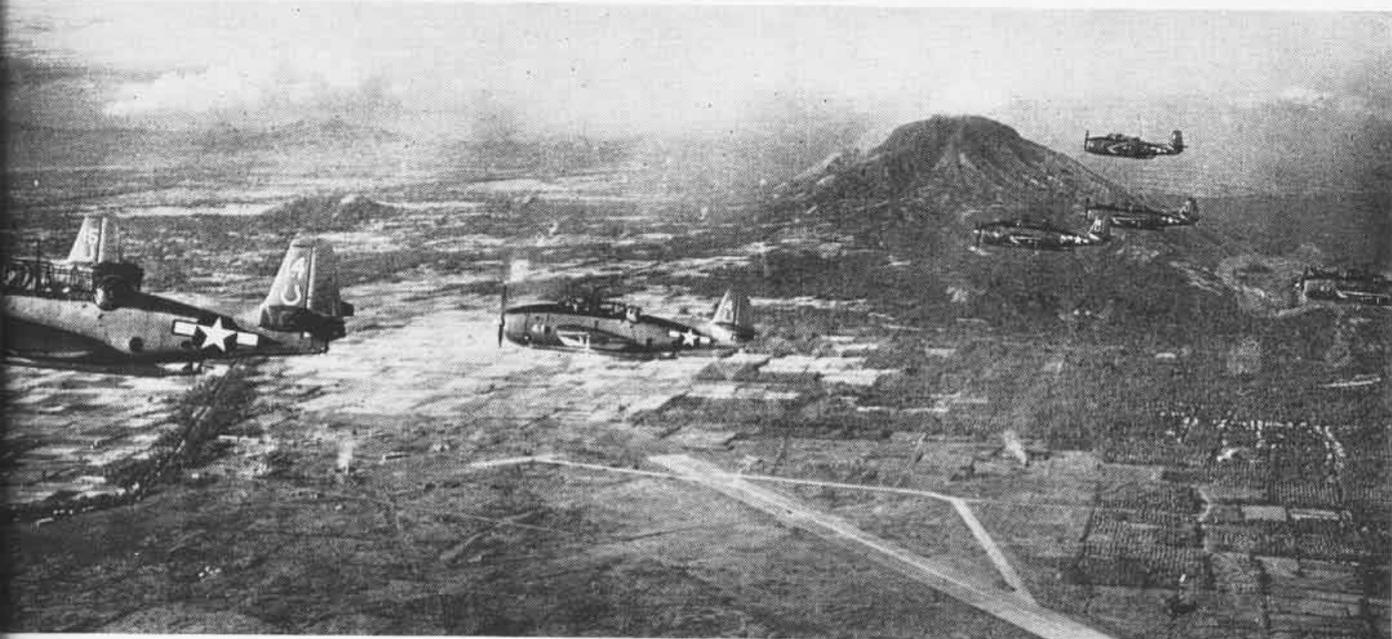
In the battle off Cape Engano far to the north, Admiral Halsey's fast carriers launched repeated air attacks on an oncoming Jap force. When surface ships finished off the cripples, the Japs had lost four carriers, a light cruiser and a destroyer. Two battleships were damaged.

Planes from this northern force attacked the Japs fleeing from the Samar action and sank two heavy cruisers and a light cruiser and damaged four of the enemy battleships.



FLAME AND METAL FLY AS JAP KAMIKAZE HITS INTREPID DECK

◀ Jap cruiser salvo falls around CVE *Gambier Bay* in Leyte Gulf. U.S. forces routed Japs but lost the ship



HANCOCK TORPEDO BOMBERS HELPED NEUTRALIZE JAP AIRFIELDS ON LUZON TO SET THE STAGE FOR INVASION OF PHILIPPINES

THE THIRD action in the Leyte Gulf sea battle took place in Surigao Strait and featured a stunning defeat administered when U. S. ships crossed the T. The attackers lost two battleships and three destroyers to surface fire and a cruiser to carrier planes.

Thus the major Japanese threat to initial Philippines landing was averted and the enemy's total surface power severely crippled. The Third Fleet lost the carrier *Princeton* and 40 planes in combat.

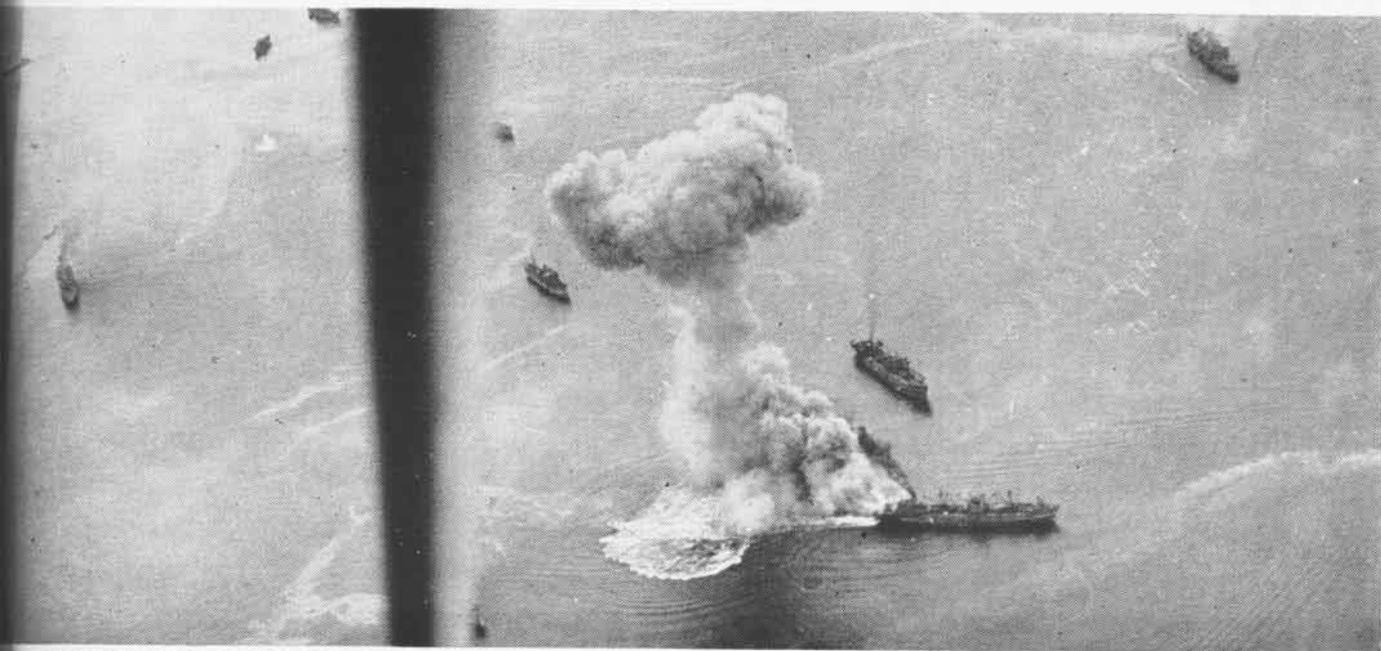
American planes were busy during November also, raiding Manila airfields to destroy 439 planes, sink a cruiser, a destroyer, a DE and five other ships. Five days later on November 11 fast carrier planes decimated a Jap convoy at Ormoc bay, sinking four transports, five destroyers and a destroyer escort.

They followed this up on November 13 and 14 by hitting Luzon to sink three transports, three freighters and three

destroyers. Eighty-four planes were destroyed on that strike and 124 on the 19th. They wound up their Leyte invasion support action by sinking a light cruiser, a mine layer, a DE, six freighters and a tanker and destroying 63 planes in the air or aground. During the November strikes the fast carriers lost only 97 planes while they were crippling Jap attempts to reinforce their Philippines garrisons.

When landings were made at Lingayen Gulf in northern Luzon during January 1945, carrier planes again swept the seas and skies for the invasion forces. Vice Admiral McCain's fast carriers hit Luzon, Formosa and the Ryukyus and shot up all available targets. Some Jap planes got through to sink the *Ommaney Bay*, a CVE.

After hitting Formosa and sinking 15 ships, the Third Fleet shifted to the South China Sea to maul three Jap convoys by surprise, sinking 41 ships and damaging 31. The enemy lost 112 planes and took heavy shore damage.



JAP SHIPPING IN MANILA BAY TOOK TERRIFIC BEATING FROM CARRIER PLANES AS PRELUDE TO THE INVASION LANDING ON LEYTE

FEB. 1945



NAVY HELLCATS ZOOM AFTER STRAFING IWO DEFENSES. CLOSE AIR SUPPORT OF GROUND TROOPS HELPED CRACK JAP CAVE POSITIONS

Iwo Jima Campaign



TURNER

FOR SEVEN months prior to February 1945 invasion of Iwo Jima that fiddle-shaped island was subjected to air attacks and surface bombardments in increasing fury and intensity. Army bombers added to the destruction but at no time was there any strong return fire. Finally, after three days of intensive bombardment and carrier plane bombing, the Marines went ashore on February 19, 1945. Troops that went ashore found an intricate system of defenses that had to be dug out cave by cave.

with close co-operation of rocket-firing planes overhead.

Neutralizing raids on Japan and the Ryukyus helped keep down enemy air strength during the Iwo campaign, but one escort carrier, the *Bismarck Sea*, was sunk by aerial action. Biggest of the pre-invasion strikes was against Tokyo a few days before the landings. A big task force of carriers swept in to achieve complete surprise, their swarms of *Hellcats*, *Avengers* and *Helldivers* shot down 322 enemy aircraft and destroyed 177 on the ground, a CVE at Yokohama was set afire and two DE's sunk. Several aircraft factories in Tokyo area were bombed. Following this strike the fast carriers returned to Iwo to furnish close air support to the landing.



NAVY BOMBERS PLASTER POCK-MARKED AIRFIELD ON IWO JIMA; EIGHT BOMBS SCREAM TOWARD TARGETS: SURIBACHI ON THE RIGHT

Ryukyu Islands



GEIGER

ORGANIZED resistance on Iwo Jima ended March 16, but the march to Tokyo kept right on rolling with Okinawa the next target. By the 25th U.S. troops were ashore on Kerama Retto after carrier planes and ships of the Fifth Fleet bombed and shelled major installations on the island of Okinawa. The Ryukyus campaign was to give the Navy its stiffest casualty lists as Japs unfurled their

Kamikaze attacks in utmost fury against the surface armada that came to support the landings. The week before the landings the Fleet struck Kyushu and the Inland Sea area, shooting down 281 Jap planes and destroying 275 more. The carrier *Franklin* was one of the casualties of this action, when the Japs retaliated strongly with suicide attacks.

A group of British aircraft carriers cooperated in the Ryukyu campaign, operating under tactical command of Admiral Spruance. American CVE's and CV's gave close support to ground forces on Okinawa and attacked enemy airfields in the island groups north and south.

The U. S. Fleet came to stay at Okinawa and Japan threw its air force in a total effort to smash the invasion. More than 4000 Jap aircraft were destroyed during the campaign. A large number of these were shot out of the air by combat air patrols or Fleet units. The toll of the Kamikaze attacks has not been made public but 30 ships were lost by enemy action and 223 damaged. The Jap battleship *Yamato*, two CL's and three DD's were sunk by carrier planes when they sortied to interfere with the Ryukyu invasion.

The tough nature of land fighting on Okinawa brought close air support tactics to their finest development, with carrier planes flying in support of ground troops.

WHILE this was going on Fleet carrier planes kept up a constant series of blows at Japanese airfields and other targets by day and night. Fleet Air Wing One bombers smashed at Jap shipping in the East China and Yellow Seas, sinking 159 vessels in two months. Navy planes virtually swept Jap ships down to the smallest fishing vessels out of the waters on all sides of Japan. As Kamikaze attacks mounted carrier planes repeatedly raided their bases in Kyushu to knock out the menace which was Japan's last desperate bid.

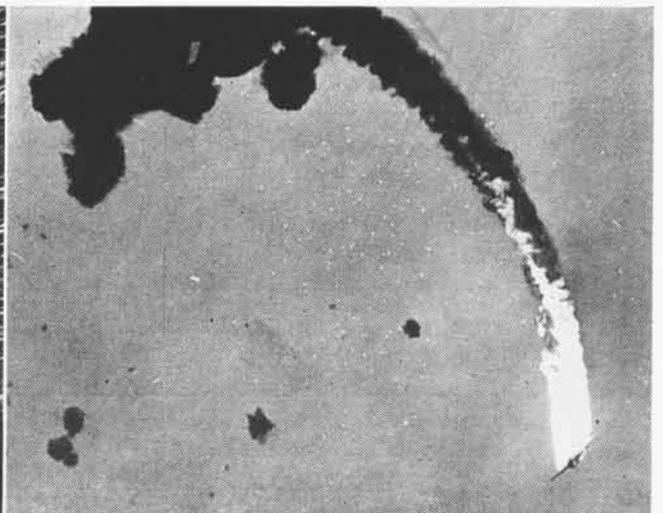
APRIL 1945



WELL-FILLED RYUKYU PORT TAKES POUNDING FROM NAVY PLANES



ANTIAIRCRAFT TRACERS OVER YONTAN AIRFIELD GREET JAPS



KAMIKAZE ATTACKS REACHED VICIOUS HEIGHT AROUND OKINAWA

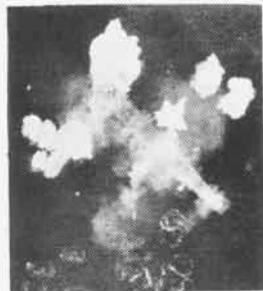
Japs Surrender



B-25 HEADS FOR TOKYO



HELLCAT BAGS JAP ZEKE



JAP CARRIER TAKES HITS

JAPAN first felt the weight of U. S. bombs when the *Hornet* carried Army *Mitchells* to within 850 miles of the coast and launched them on April 18, 1942. It was not until February 16, 1945 that carrier planes penetrated the Japs' defenses lines to slash at Jap aircraft as a prelude to Iwo Jima invasion. From that day on, when 322 Jap planes were shot out of the air, the skies over Japan's home islands seldom were without raiding Navy planes.

Thousand-plane carrier raids became a daily occurrence. The fast carrier task force cruised up and down the Jap coastline hitting strategic airfields and defenses from the snowy Kuriles to Kyushu's Kamikaze nests.

Carrier planes paid three visits to the Jap homeland in March, the third strike accounting for 281 planes in the air and 275 destroyed on the ground, six ships sunk and damage inflicted on 15 warships around Kure.

A week later carrier planes again hit southern Japan air installations and shipping, sinking two DE's and 29 smaller vessels. April saw the carrier pilots concentrating on Kamikaze bases on Kyushu, shooting up planes and hangars. Two days of hunting netted 196 planes brought down in combat. While this was going on the major Fleet carrier effort was in support of the Ryukyu campaign. Airfields on nearby Jap islands were hit repeatedly.

More weeks of constant raids were ham-

pered by a lack of targets as Jap planes and ships began to be hard to find. Shipping raids in seven weeks to June 9 netted 157 ships and small craft sunk and 173 damaged by patrol bombers from Marine and Fairwing squadrons.

With the Ryukyus conquered, carrier raids began in earnest during July on Japan.

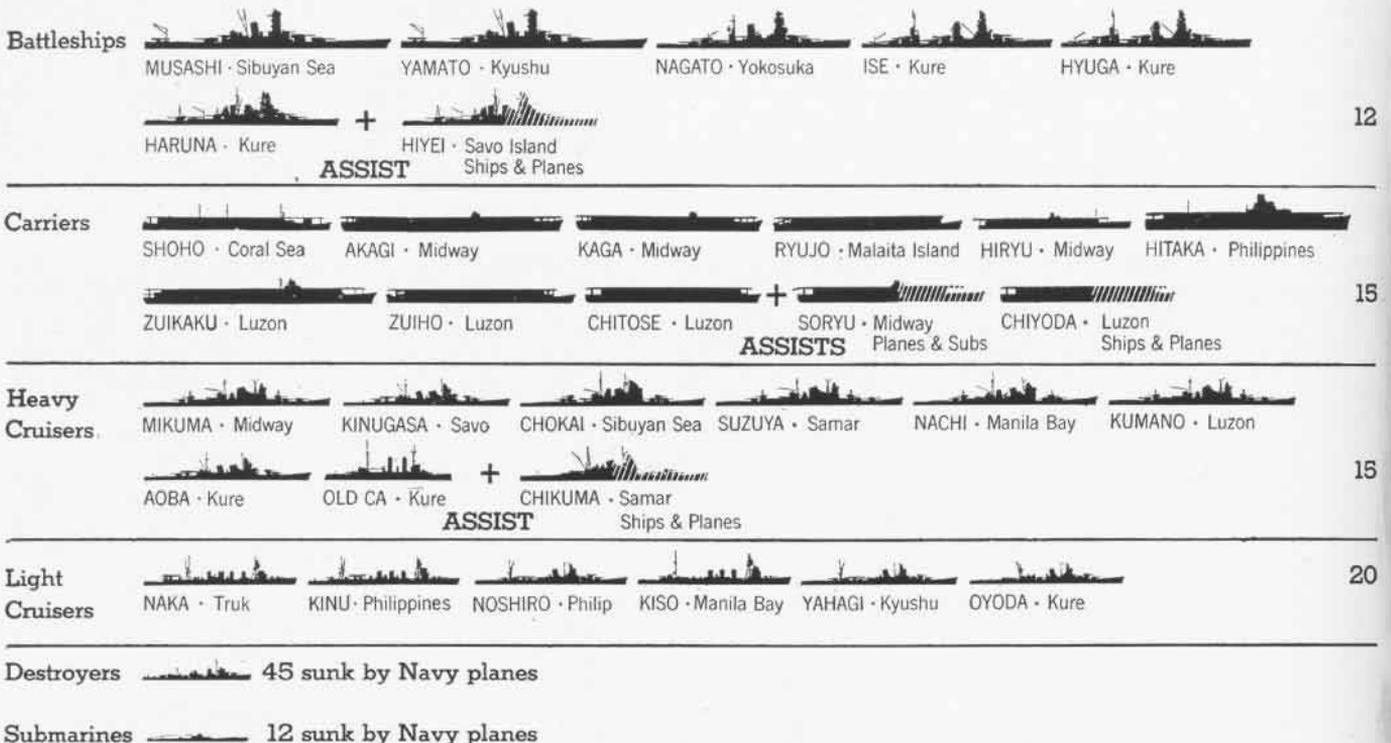
Thousand-plane raids swept the Tokyo area for the first time since February, shooting up all targets sighted. Enemy planes became elusive and thousands of sorties were flown with no retaliation. Halsey's fleet combed Japan from Hokkaido to Kyushu. Two and a half months of cruising up and down the coast netted it 2965 Jap planes shot down or damaged and 1650 ships sunk or damaged.

H EAVIEST final blows came the last of July. Fleet planes damaged 22 Jap naval units on July 24-25, destroyed 53 merchant ships and damaged 86 more, destroyed or damaged 219 planes. Battleships, carriers, cruisers, destroyers and submarines all were hit or sunk. Thirteen more were sunk or disabled on the 28th and 39 damaged. Finishing touches were given on the 30th and 31st when 24 ships were sunk and 103 damaged and 278 planes destroyed.

The BB *Nagato* was crippled at Yokosuka and the last of Japan's BB's, the *Haruna*, at Kure. Jap fleet and air forces were finished. Carrier supremacy was complete. Japan surrendered.

JAP SHIP LOSSES TO NAVAL AND MARINE AIRCRAFT

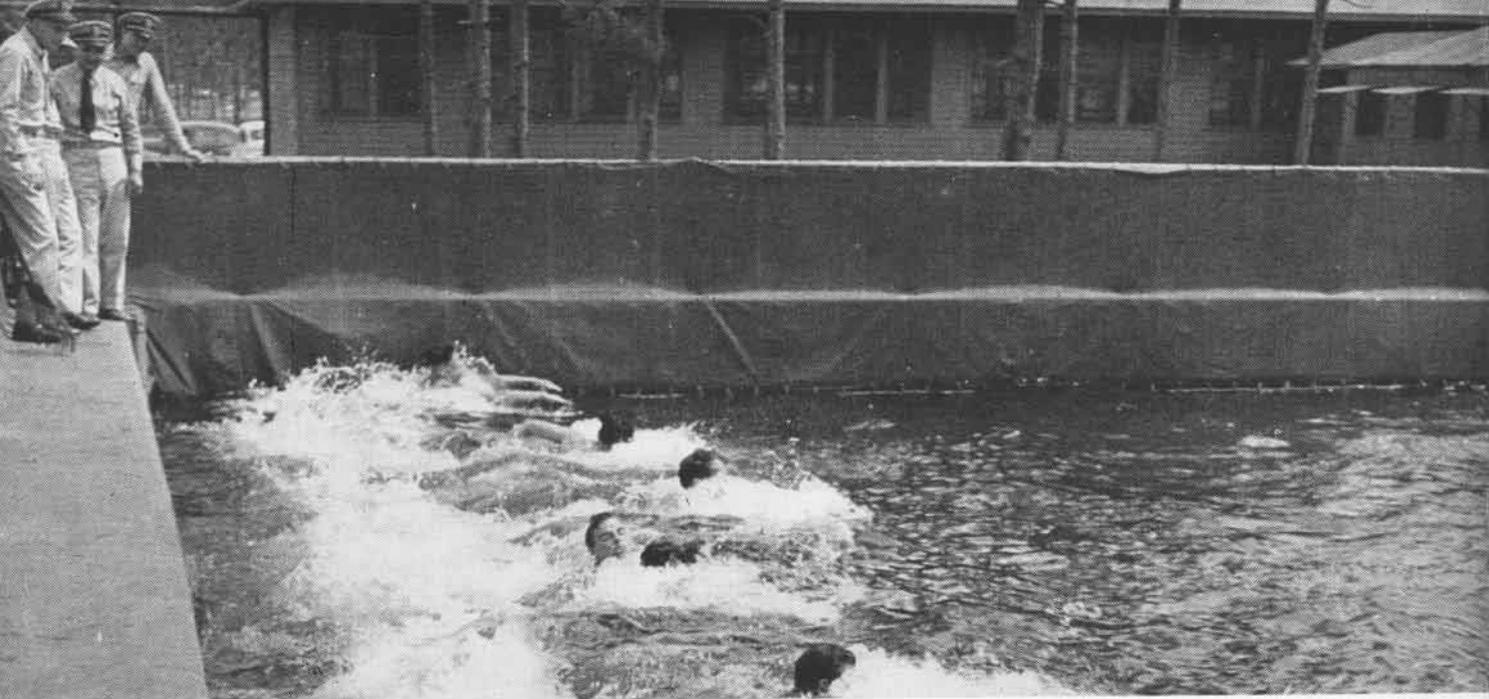
Total Loss
all Sources



TOTAL 87 Major fleet units sunk by Navy planes out of 318 total all sources.

NANews Chart





SIXTY-FOOT LONG PORTABLE POOL PROVIDES PLENTY OF ROOM FOR A SWIMMING CLASS; THIS TANK IS SET UP AT NAS LAKE CITY, FLA.

PORTABLE POOL

Rubber Lined Steel Tank Ideal For Use At Isolated Stations

A PORTABLE swimming tank that can be constructed in only three days is the newest project sponsored by Aviation Training Division's Physical and Military Training section.

Ideal for training beginners at leased fields and isolated stations, the portable tank is of steel construction with a rubber liner. The tank measures 40'x60'x4½' and holds 80,000 gallons. Water may be completely changed twice in 24 hours with proper sterilization equipment.

A platform surrounds the pool and a gutter at one end facilitates removal of

leaves and other surface debris. An experimental pool, put in operation at NAS LAKE CITY is meeting preliminary tests successfully. Requests for procurement should not be made until completed models are perfected and available for distribution.

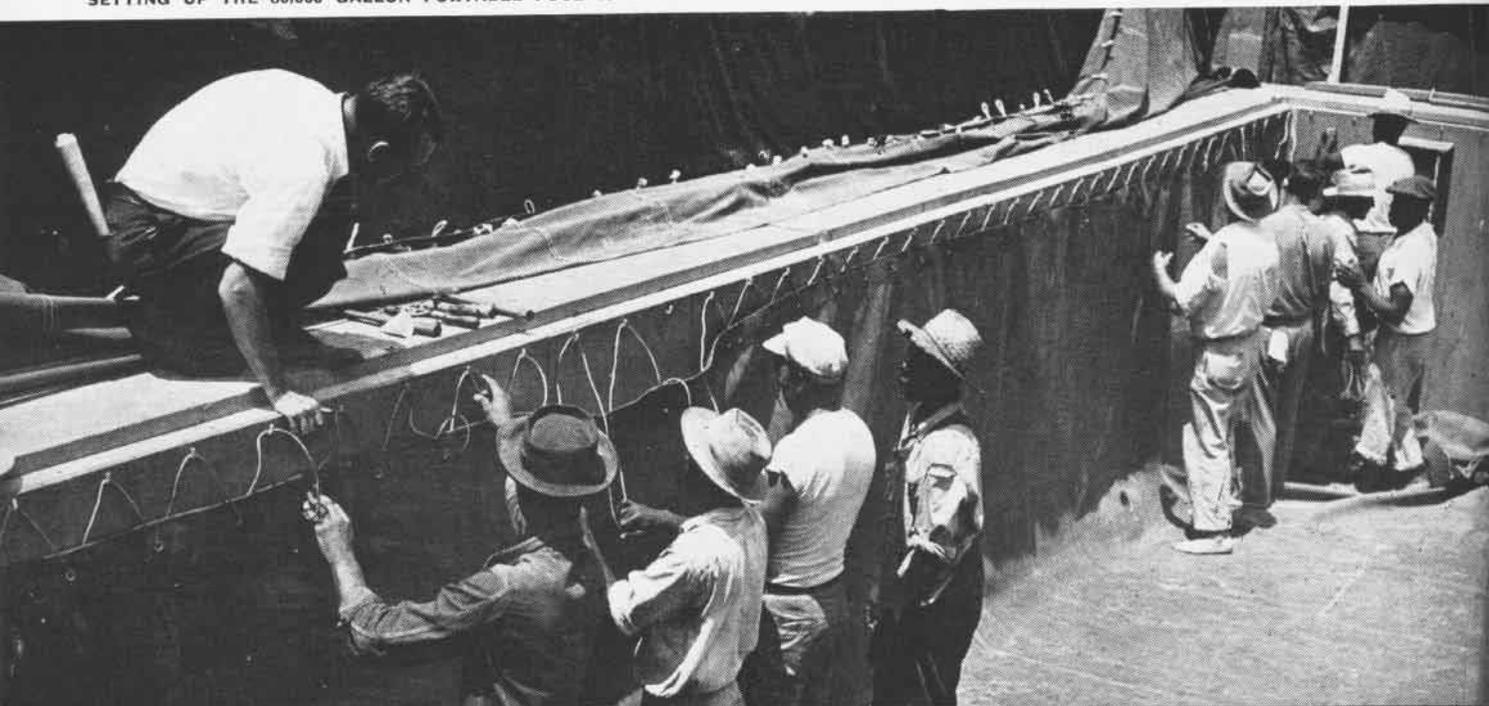
Another recently developed aid for swimming instructors is a new type kick float measuring 12"x21"x1½". A valuable aid in instructing beginners, the float is made of two pieces of soft cellular rubber with a ¼" thick piece of plywood between each section.

The new kick float is less dangerous in crowded pools, provides more floatation than the old type, is noiseless when dropped on the pool deck, and will not damage tile edges. While most air stations have been supplied, some of these floats still are available.



New kick float is ideal for beginning swimmers; device ends chipped paint problem

SETTING UP THE 80,000 GALLON PORTABLE POOL IS A THREE-DAY JOB; WORKMEN INSTALL A RUBBER LINER INSIDE THE STEEL TANK



GRAMPAW PETTIBONE

Getting The Word

A student in primary training was inattentive as to the location of obstacles along the taxi strip. He also was taxiing too fast. He hit an upright sign just off the paving. When he got out of the aircraft to inspect the damage, he noted the legend on the sign. It was: "TAXI SLOWLY."

Sloppy Signals

The second pilot was bringing a PBV-5A in for a field landing. The second radioman, who was qualified to check the landing gear, found the nose wheel doors were only slightly ajar. Not knowing the plane was close to a landing, he only made a vague sort of gesture. The Patrol Plane Commander interpreted the radioman's signal as meaning that the wheels were down and permitted the co-pilot to land. When the plane touched the ground, it fell forward on the bow and skidded to a stop.

Disciplinary action was taken against the PPC for this accident.

To prevent future accidents of this kind, the squadron commander issued an order requiring that the landing gear be lowered far enough in advance of getting on the ground to enable a check and report to be made that the landing gear actually is down and locked. The order also directs pilots to insure that standard signals only are used when referring to the position of wheels, flaps or wing-tip floats, that they are given in a very positive manner and that they are repeated back to show they are understood.

▶ **Comment:** Aviation Circular Letter 95-44 contains the directive on this subject. All commands should check to insure strict compliance by all personnel involved.

Batten, Batten, Who's got the Batten?

An alarming number of reports are received covering damage to surface controls and actuating mechanisms due to aircraft being parked in high or gusty winds without benefit of battens.

This trouble is not peculiar to any one type of airplane but is more prevalent on the larger airplanes where the control surfaces are more difficult to get at.

Technical Note 43-43 contains direc-



tive for use of battens on parked planes.

It is pointed out that propeller blast from other airplanes may have the same effect as high winds.

Take-off Emergencies

Case 1. Upon reaching an altitude of 200 feet on take-off, the engine of a TBM cut out. The pilot attempted a steep turn back toward the field, during which the plane stalled and spun in, killing the pilot and one crewman.

Case 2. The engine of an FM suddenly lost power on take-off at an altitude of about 300 feet. The pilot attempted a turn to get into the cross-wind runway but his plane stalled and crashed. The pilot suffered serious head and face injuries, and was hospitalized.

Case 3. Following engine failure at 50 feet on take-off, a student in an N2S dropped his nose and made a sharp turn in an attempt to get back into the field. The plane stalled and crashed, seriously injuring the student.

Gram paw Pettibone says:

Sure, everybody knows that in emergencies such as these, unless you have plenty of altitude, you should land straight ahead. But it is a natural instinct to land on an airfield and you will do exactly what these boys did unless you prepare yourself ahead of time.

In this emergency, you are too low to jump and you don't have time to figure things out. The main thing to remember is, *don't lose flying speed!* This isn't as easy as it sounds because you are usually in a climb, just above stalling speed. So snap that nose down like you were taught in a cut-gun emergency. After that, if you have any time left, you can maneuver into the clearest available landing area. Records show that if you can get your wheels on the ground with the airplane still under control, your chances of "walking away" are many times better than if you lose control and spin in.

This is one of the maneuvers you can't learn by correcting your mistakes because you seldom get a second chance. So use your head for something besides keeping your earphones apart; figure this thing out and get it firmly fixed in your mind. Then, to insure that you will react correctly, visualize this emergency on your take-offs until you know force of habit will overcome your natural instinct.

Don't try to turn back into the field when you haven't got a snowball's chance of making it. Don't lose flying speed.



AAR's

Attention is invited to the fact that the "combat or local emergency conditions" referred to in ALNAV NO. 8 of 1943 now are terminated.

Aircraft Accident Reports (Form NAVAER 339) again become a *must* under ALL operating conditions. See Aviation Circular Letter 48-44.

Expensive Fun

A naval aviator was reported for flying formation on a commercial airliner last month.

He was tried by general court martial, found guilty and sentenced to lose \$100 per month of his pay for a period of ten months—total loss of pay amounting to \$1000.

In approving the proceedings, findings and sentence, the convening authority commented that he considered the sentence inadequate in view of the gravity of the offense, which needlessly endangered the lives of others.

Don't Be a Cockpit Ostrich

Case 1. An F6F was observed to be making a normal carrier approach until on the crosswind leg it began losing altitude and crashed just before reaching the groove. Observers on board the escorting destroyer stated that the pilot appeared to be leaning over in the cockpit just prior to the crash. It was the opinion of the investigating board that the pilot inadvertently eased forward on the stick while leaning over to make some cockpit adjustment.

Case 2. Immediately after take-off, the student pilot of an SNJ experienced engine failure. He picked out a field and began his emergency approach. At this point accompanying pilots saw him leaning forward in the cockpit, apparently occupied in getting the engine started again. The airplane lost altitude rapidly and crashed without breaking its glide.

 **Grampaw Pettibone Says:**

Who in blazes do you think is going to fly the airplane while you fiddle around with your head in the cockpit like an ostrich? During contact flying, common sense should warn you of the danger of keeping your head in the cockpit for more than a second or two, particularly at low altitudes.

Nothing To Win

Case 1. Following take-off from an outlying field, an instructor returned with his student and made several passes at parked planes. On his last

dive, he hit the ground while still at an angle of approximately 15 degrees.

The instructor paid with his life for this folly. He might still have gotten another chance, however, had he been wearing his shoulder harness, for his only injuries were about the head and face. The student, who was wearing his harness properly secured, was injured only slightly. He walked away from the crash.

Case 2. While making a glide bombing run in a float-type plane, the pilot failed to pull out in time. The plane hit in a flat attitude, tore off the main float, bounced into the air and came down nose first, sinking in less than one minute.

The pilot was not wearing his shoulder harness. He was knocked unconscious and sank with the plane.

The passenger, who had his harness secured, received no injuries. He made an unsuccessful attempt to rescue the pilot before the plane sank.

 **Grampaw Pettibone says:**

Just a little horse sense—about the amount God gives the horse's long-eared half-brother—is all you need to realize that the odds are all against you when your shoulder harness is not secured.

Emergency Technique

While at 2000 feet altitude and six miles from the field, an SBW-3 pilot (342 hours) noted that his engine began to surge and lose power. He immediately broke formation and headed for home.

GRAMPAW'S SAFETY QUIZ



ALL AVIATORS should know the answers to these questions. In the air, the penalty for not knowing may prove fatal. If you miss an answer on the ground, penalize yourself by looking up the reference.

1. In regard to speed, acceleration and angle of bank, what is meant when an airplane is restricted to normal flying?
2. In the later SNJ's, how much rudder can you use before the tail wheel disengages and becomes free swiveling?
3. When filing an instrument flight plan or whenever flying under IFR, what are the prescribed altitudes for various magnetic headings, outside of control zones?
4. Should planes equipped with electric propellers be dived with propeller in manual or automatic?
5. Are BuAer service changes mandatory or advisory?

(Answers on page 40)

The engine failed completely shortly after he entered the traffic pattern. He was directly over a congested area at the time and, being too low to glide into the field, he turned toward the river. He hit the trees 300 feet before reaching there, however.

Both the pilot and passenger were injured. The plane received strike damage.

The investigating board pointed out the following pilot errors during this emergency:

a. He failed to call the tower for emergency landing clearance. The pilot stated he was too busy to do this, but it is not believed he realized the importance of this step. To do this assures you of a clear runway at a time when to go around again may mean a fatal crash.

b. He made his approach over a congested area, thus needlessly endangering the lives of others. The flight leader advised him to make his approach along the river but this message apparently was not received.

c. His approach error was further compounded by coming in at low altitude. When approaching a field for an emergency landing, particularly with engine trouble, sufficient altitude should be maintained to be able to glide into the field from any position in the landing circle.

Taxi Collisions

While an F6F pilot was returning to the hangar via the taxi strip in front of the tower,

- ▶ He was aware that another fighter was taxiing ahead of him, but
- ▶ He failed to note that the other plane had come to a stop, with the result that
- ▶ He taxied into the other plane—causing serious damage.

 **Grampaw Pettibone Says:**

This happens so often you can almost sing it; over 800 times with major or strike damage last year. And most of them occurred because pilots either: a. taxied too fast, b. failed to make sufficient "S" turns to insure a clear runway, or c. failed to keep a sharp lookout over both sides of the cockpit.

Such pilot errors are symptoms of a mental disease inherent in each of us—carelessness. Fortunately, it is not incurable. It normally will disappear with experience or age, but you don't have to wait for that. Most cases can be cured by mixing a pinch of will power with a lot of common sense and taking a dose of that before each flight.

Where the disease has reached the malignment stage, however, it will seldom respond to this simple cure. The only thing that will check it then is the moral suasion treatment, administered in increasing doses, until all symptoms disappear.



Kerama Retto in Ryukyus forms background for this view at a seaplane base. Aboard a barge, PBM will get routine repairs



Fleet Admiral Ernest J. King, usn, leaves former Nazi quarters, Bremen, Germany, after inspecting Navy activities at the port



Good Neighbors among our sister republics to the south, contributed materially to victory over the Axis. Typifying the global aspects which naval aviation assumed during World War II is this view of a Navy plane operating from the Brazil coastline

Wildcat Factograph

AN APPALLING proportion of the FM's rolling off the production line were wrecked or damaged before a year was out due to accidents with the pilot at the controls, and without a Jap in sight. The cost of *Wildcats* thus wrecked, plus the cost of replacing damaged parts of repairable aircraft, has run into many millions of dollars a year, representing the annual labor of thousands of men. In about seven out of 10 accident cases, boards assigned pilots primary responsibility, and in

others they were held partially responsible. An analysis of 1000 pilot-caused *Wildcat* mishaps covering somewhat less than a year, placed three-fourths of them in seven specific categories: groundloops and swerves (27%), hard or bounce carrier landings (14%), failure to lower or lock wheels down (12%), pilot-caused engine failure (7%), hold-off barrier crashes (5%), spins on landing approach (5%), and nose-ups while taxiing (5%). An analysis of all the crashes studied follows.

Groundloops And Swerves



The difficulty in maintaining directional control on the ground is a most prolific source of trouble in the narrow-gauged FM, accounting for one out of every four pilot-caused accidents. Every landing in the FM is a potential groundloop; you just can't sit there and let it land itself. Before beginning your approach, be sure your tail wheel is locked and your brakes pumped. To help avoid landing in a skid, contact the tower for information on crosswinds and gusts, and be sure the designated runway is the one most nearly into the wind. If your approach is ragged, or if there is danger of slipstreams, you can avoid trouble by taking a wave-off.

After you have landed, keep your eyes peeled for embryonic groundloops. Line up with a reference point, avoid depending on the rudder after you have slowed down to 35 knots, beware of over-correcting, and leave that tail wheel locked until you can turn safely.

In carrier landings you avoid the catwalk by a good approach. If you angle in, land off center, or land with one wing down, you can't expect to stay on the deck.

During take-offs, in addition to insuring that the breaks are right and the tail wheel locked, there is that little matter of rudder tab—2½ marks nose-right in the normal case, but less or more, depending on the direction and the strength of crosswinds. If it's touch-and-go, apply the throttle for the take-off, promptly, to help maintain control, but smoothly, to avoid torque. When you are taking off from a carrier, make certain that you release both brakes at the same instant, and that you don't get excited and over-correct if your FM starts veering toward the catwalk.

Groundloops and swerves while taxiing simply shouldn't happen, but every few days some pilot promotes an accident by attempting a turn with excess speed, by catching his plane's tail in a slipstream, by failing to check his brakes, or by fast taxiing. Many accidents occurring during the take-off or landing, really begin with the pilot asking for trouble by riding his brakes on a taxi strip coincident with excessive throttle, or in a stiff cross-wind.

Relative to groundloops, the principal variable in the airplane is the condition of the brakes. Never take off without first having checked them.

You can't avoid groundloops in the FM by experience alone. There is no substitute for constant vigilance.

Spins During Landing Approach

Approximately five out of every seven spin-stall accidents in the FM occur during the landing approach,

especially during field-carrier landing practice. The turn to final approach is the point of incidence of the largest portion of these accidents, but the turn to the cross-wind leg and the groove itself also claim a substantial share. Spins during wave-offs are not uncommon, especially following slow, mushing, carrier or field-carrier approaches.

Frequently, the stall originates upon hitting an unexpected slip stream; sometimes after slowing down excessively to lengthen the interval between the planes. In other cases the pilot overshoots the groove, or makes his crosswind leg too close aboard, and finds himself in a tight turn into final with inadequate lift.

The penalties of a slow approach (in the form of spins, colliding with obstructions, undershooting, etc.) are frequent and serious. Hence, insofar as air speed during the approach is concerned, by all means don't err on the slow side. Rather than attempt a steep bank into the groove to correct overshooting, take a wave-off. But in taking the wave-off, be sure to level your wings as you ease on the throttle, and be on the alert for the tendency of the nose to raise.

Pilot-Caused Engine Failure

The FM single-tank fuel system is simplicity in the extreme, but that doesn't stop some pilots from having fuel troubles. One favorite trick is to turn the selector valve to a non-existent "droppable" or "off," while intending to actuate the adjacent flap control. Another, is to fly dumbly along with a stuck fuel gauge, apparently expecting the gas to last forever. To keep yourself out of fuel troubles, make sure your tank is topped-off properly before you begin your hop, adjust your mixture, your RPM, and your manifold pressure, so you will end up with the most gas in your flight—not the least;



FM BALANCES A MOMENT ON ITS SPINNER

and return to base promptly and at economical speed if your gas gets low, calling the tower for an emergency landing if you have the slightest doubt about the quantity of fuel remaining.

A considerable portion of pilot-caused engine trouble in the *Wildcat* takes place during the take-off. Throttle-creep sometimes occurs when the pilot removes his hand from the throttle to crank up the wheels, so don't neglect the friction-brake knob. Attempted take-off with the engine loaded up after long idling is another frequent error, the cure being *a.* always make the 5-second idle mixture check which is discussed in TO 80-44, and *b.* always clear engine fully after long idling.

During touch-and-go practice (and wave-offs), pilots occasionally get into engine difficulties by failing to adjust prop pitch and mixture controls; also, the sudden jamming on of throttle sometimes causes the FM engine to falter or fail completely in a crisis.

Hold-Off Barrier Crashes



Hold-off barrier crashes are the fifth most frequent type of pilot-caused *Wildcat* accident.

In the typical case, the pilot makes a somewhat fast approach, takes the cut, but fails to fly the airplane down to the deck. Or the pilot may make contact with the deck, but fail to force and hold the tail down with the stick. Occasionally an accident has its inception in failure to chop the throttle completely and immediately upon receipt of the LSO's signal.

When the cut is taken, don't "horse" back on the stick immediately. This will float you into the barrier, or stall you out high. The stick should not be pulled back until the plane has started to settle. Then, it should be eased back to cushion the landing.

Admittedly, it takes some pretty fancy piloting, coupled with keen depth perception, to fly down to the deck without diving, and to get and hold the tail down without floating. But the task is made much easier with a good approach, which means immediate response to all of the LSO's signals.

Hard Or Bounce Landings

The shock of hard landings is not readily absorbed by the short oleo struts of the FM landing gear, nor does the short deck of a jeep carrier, from which the FM operates, permit much of a bounce before you find your prop chewing up the barrier. So in the *Wildcat*, you have to avoid diving for the deck as you would avoid the plague.

Stay out of trouble by replying promptly to the LSO's signals relative to

altitude, attitude and speed. When you get the cut, do not drop your nose, for if you do, you are sure to hit hard and bounce into the barrier; or, if you luckily have caught a wire, damage your aircraft in the landing area. Hold your nose in the position it is in at the time of the cut. When you commence to settle in this attitude, ease stick back.

Wheels Up Or Unlocked

The FM, only Navy combat plane with a hand-cranked landing gear operating mechanism, has its own unique causes of numerous wheels-up landings. The hand crank normally requires 28 turns to get the wheels down. It's a good idea to count your turns, but don't depend upon count alone, for in some cases more turns are required. A point is reached in turning the crank handle at which it becomes difficult to rotate the handle, but don't stop there because hardened grease and grit may be causing the crank to stick.

You must observe the position-of-wheels indicator, but this alone is likewise not dependable. To make sure your wheels are down and locked, turn the crank as far as it will go, at which point you should feel a definite metal-to-metal indication. If the wheels are full down, the extended position lock will remove all possibility of the wheels retracting during your run-out.

Wildcat pilots have their share of those *Dilbert* accidents wherein no attempt whatsoever is made to lower the gear, and those cases where lowering of the wheels is not completed after having been interrupted for various reasons. If you make a practice of always going over your check-off list,

double-checking your wheels, handle, contacting the tower and of glancing at the runway watch for a wheels-up indication, your chances of forgetting to crank your wheels down are infinitesimal.

The landing gear of this airplane must not be abused. If you make a heavy landing, be sure the gear is inspected before the plane is flown again. Some pilots seem to have adopted a sort of "C" method of lowering the gear, that is, unlatching the handcrank, then pulling the nose up to let the gear lower itself. This may result easily in damage to the operating mechanism, and it is definitely not recommended. Several cases of stripped gears have occurred after the handcrank tore out of the pilot's hand and the wheels "ran away." A properly adjusted friction brake, and a firm grip on the crank handle, prevent this type of accident.

Taxi Nose-Ups



The *Wildcat* has a very marked tendency to nose up, and must be treated accordingly. Accidents of this nature occur most frequently when you hit the slipstream of another plane, but sudden brakes and gusty crosswinds also are common contributory causes.

To avoid taxi nose-ups in the FM, you must use great care while taxiing behind other planes, particularly at the take-off position, and at other places where engines are being run up. Conversely, whenever you are running up your engine, take care to see that no *Wildcat* (or other plane, for that matter) is in a vulnerable spot behind you.



FLOATING IN HIGH, AN FM MISSES ARRESTING GEAR CABLES AND CRASHES ON THE DECK

BEST ANSWERS

G.I. Bill of Rights

PICK THE BEST choice to complete the statements below, then check your answers on page 40.

- A veteran, in order to be eligible for educational allowances, must have served a minimum of 90 days after September 15, 1940, but prior to the termination of the war (less than 90 days if discharged because of a service-connected disability) and have been discharged under conditions other than dishonorable. If he meets these requirements, he—
 - a—is not eligible for educational allowances if he was over 25 years of age at the time of entering the armed service
 - b—is eligible for at least one year of schooling, regardless of age
 - c—must prove his education was interrupted, regardless of his age at the time of entering the service
 - d—is not eligible for any educational assistance if he graduated from college prior to entering the service
- For those eligible, the G.I. Bill of Rights permits a *maximum* of—
 - a—four calendar years of schooling
 - b—four school years of approximately nine months each
 - c—the time required to complete college undergraduate training
 - d—one year of schooling for each year of military service
- Under the benefits of the G.I. Bill of Rights a veteran can—
 - a—attend only a college or university located in his home state
 - b—receive tuition payments and subsistence allowance for apprentice training on-the-job
 - c—attend any school recognized by the Veterans Administration
 - d—attend only recognized schools located in the United States
- The benefits of the G.I. Bill of Rights are restricted to—
 - a—veterans
 - b—enlisted men
 - c—men in service and veterans
 - d—all members of the armed service except officers above the third pay period.
- Under the present provisions of the G.I. Bill of Rights, courses must be completed within—
 - a—three years after war's end
 - b—five years after the war's end
 - c—seven years after war's end
 - d—nine years after the war's end



WELL STOCKED READING ROOM POPULAR WITH CADETS; CONFIDENTIAL FILES AVAILABLE

CADETS HEARD WORD ON WAR AT PENSACOLA

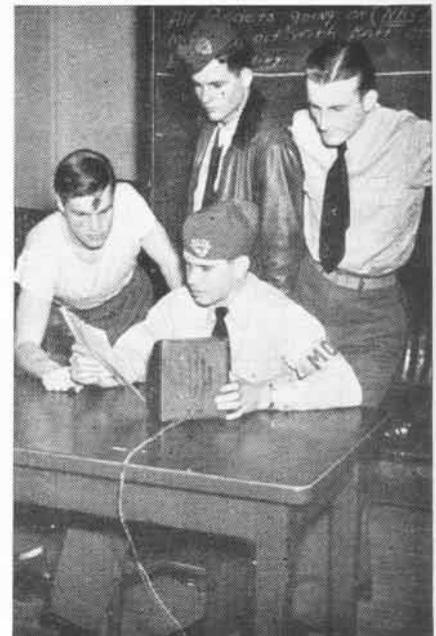
NAVAL Aviation Cadets at NATB PENSACOLA have had no difficulty keeping up with strategy and changing developments of the war. An orientation program, including classes taught as part of the ground school syllabus, follows a general plan estab-

lished by the NAVAL AIR INTERMEDIATE TRAINING COMMAND. Pensacola's enlarged orientation room consists of a fully equipped library, auditorium and display room. Located in the cadet recreational club, the center is open at all times during the day and evening. Orientation lectures during induction week brought incoming cadets up to date on the war.

Late news photographs, informational movies and a library kept men abreast of the war. Under supervision of the war orientation officer a daily news summary is published for distribution throughout the command and nearby naval hospitals. A voice communication system relays news throughout the cadets' barracks at 2100 daily.



GLOBAL MAP KEEPS CADETS UP TO DATE



NEWS IS BROADCAST THROUGH BARRACKS

DID YOU KNOW?

Pilots May Ask Engineering Duty

Ensigns and Above Eligible To Apply

A limited number of naval aviators, both heavier-than-air and airship, of the Regular Navy now can apply for designation as engineering-duty-only (aeronautical) officers. Officers whose education and experience qualify them for engineering and material duties connected with radio, radar and armament will be selected.

Officers of all ranks holding a permanent appointment of ensign or above are eligible to apply. Lieutenants and lieutenants (junior grade) are especially desired.

According to ALNAV 190, applications should be submitted via official channels to reach BUPERS not later than October 15, 1945.

They Live to Fight Another Day

Air Personnel Dunked But Not Defeated

The value of survival drill proved itself on the record during the fiscal year from June 1944 to June 1945. Rescue reports forwarded to the Chief of Naval Operations from every theater of operations, as well as from training commands, showed that 2167 people involved in dunking incidents during the year were hauled from the "drink", wiped off, and sent out again for further duty against the enemy.

These survivors represent only those personnel involved in salt water sojourns requiring the services of *Dumbo* planes, blimps, helicopters, and crash boats. There were thousands of others lifted from the water in routine rescues accomplished by men aboard surface units.

Navy To Develop Air Rockets

Inyokern Will Handle Post-War Work

Rocket development activities in the post-war period will center at NAVAL ORDNANCE TEST STATION, INYOKERN, under supervision of BuORD, it has been announced. California Institute of Technology and the Office of Scientific Research and Development have shared in research and experimental production.

Eventually, research, design and testing, as well as supervision of all rocket development activities will be carried on at the Mojave desert station. Laboratory work and BuORD design unit will be transferred from Pasadena

to Inyokern, as will processing of rocket propellants, now done at a plant under CIT management near Pasadena. Experimental production of metal parts, assembly and inspection will continue



NOTS INYOKERN DEVELOPED 5" ROCKET

in the Pasadena area with a private contractor.

NOTS INYOKERN covers 1,000 square miles of desert terrain and permanent installations there cost \$35,000,000.

Navy Men Study For Peacetime

In Central Pacific 8800 Attend Class

PEARL HARBOR—With war in the Pacific ended, more than 8800 officers and enlisted men today are turning their thoughts toward advancing themselves in a peacetime profession. As a means to that end, they are enrolled in 397 different classes scattered among

naval activities in the central Pacific area and are studying high school, college and vocational subjects. Most of the educational credits they receive will be honored by stateside schools.

More than 300 qualified Navy teachers are offering such subjects as mathematics, psychology, aviation, engineering, art and the languages. There are 10 education service centers operating in the central Pacific area, centering at Pearl Harbor which offers the most extensive program. The Pearl Harbor center has 4800 officers and men enrolled in 155 off-duty classes.

NATS Transports Fire Fighters

VR-5 Planes To Rescue At Quillayute

VR-5—When a large brush fire got out of control and threatened NAS QUILLAYUTE, this squadron received a call to transport 200 men from NAS WHIDBY ISLAND to fight fire around the Olympic Peninsula air station.

Within one hour three R4D's and one R5D with crews were mustered to transport forest fire fighters. The following day another call for transporting additional men to combat the forest fire was received. In 25 minutes four R4D's were airborne. Fire fighters brought the blaze under control the following day.



WHEN a carrier-based photo plane from the Third Fleet flew over Hirohito's palace in Tokyo it brought back a good picture of the handiwork of American airpower—a large area of ruins where imposing buildings once stood. The part of the palace still standing roofs the imperial household. Many apparently undamaged buildings in the background indicate that part of Tokyo was not hit by the bombers as heavily as factory areas.

NAGS Now Under NATechTraCom

Jacksonville, Miami, Purcell In Change

Naval Air Gunner's schools at Jacksonville, Miami and Purcell, Okla., came under cognizance of the NAVAL AIR TECHNICAL TRAINING COMMAND on August 1.

NAGS provides combat aircrewmembers with six weeks of ground training in gunnery, communications, and ordnance. Operational training for combat aircrewmembers continues to be a function of NAVAL AIR OPERATIONAL TRAINING.

High Test Gas Fumes Are Toxic

Vapors May Affect Man's Brain, Lungs

Vapor fumes from high test aviation gasoline act are a powerful intoxicant and anesthetic on anyone accidentally breathing them, according to the *Royal Navy Aviation Medicine News Letter*.

A concentration of aviation gasoline vapor exceeding one percent, which may readily be found in a confined space in the presence of loose aviation gasoline, is dangerous. Two men working in a compartment where high test gas was spilled were unconscious for several hours, followed by extreme restlessness and shock. One man recovered after two weeks' hospitalization, during which time he appeared mentally depressed. The other was surveyed from the service due to an acute anxiety state.

Short exposure to a concentration of fumes stronger than 1 in 50 may be fatal, it was said. There is a narrow margin between the dosage which causes narcosis and that which is fatal. While aviation gas vapor fumes are irritating and tend to 'catch' the breath, it is possible to breathe a dangerous concentration of the vapor. A brief feeling of giddiness is soon followed by collapse.

Tetra-ethyl lead contained in high octane gas may be absorbed into the body by inhalation. Symptoms of the vapor may be immediate or delayed. Minor symptoms are lassitude, undue fatigability, headache, insomnia, bad dreams, pallor, course tremors, anorexia and morning vomiting. Major symptoms are predominately mental.

Rescued Men Can Join New Club

Gibson Girl Company Offers Membership

A new organization of interest to Naval Aviators and aircrewmembers has been formed by manufacturers of the Gibson Girl radio which is carried on larger planes for possible use in sea rescues.

Eligible for membership are men who have been rescued through use of the hand-cranked radio set. A certificate and gold lapel pin in miniature

of the Gibson Girl will be sent by the non-profit organization to all men contacting the company and advising it of their eligibility.

The new organization is called the Order of Gibson Girls and correspondence should be addressed to BENDIX AVIATION CORP., PACIFIC DIVISION, 11600 SHERMAN WAY, NORTH HOLLYWOOD, CALIF.

6 Activities Affected In Orders

Quonset Link Celestial School Closes

By order of the Office of the Secretary the U. S. NAVAL TRAINING SCHOOL, (LINK CELESTIAL NAVIGATION) NAS QUONSET POINT was disestablished effective August 10.

NAVAL AUXILIARY AIR FACILITY,

BEVERLY, MASS., was disestablished August 1 by order of the Office of the Secretary. NAAF BEVERLY was established in May 1943.

NAS BURMUDA was redesignated as a U.S. Naval Air Facility. The change was effective in July.

U.S. NAVAL AIR STATION, GLYNCO, GA., established in November 1942 as a lighter-than-air station was redesignated as a naval air facility under the technical control of CNAOPTRA. The change was announced August 6.

NAVAL AIR STATION (LTA) WEEKSVILLE, ELIZABETH CITY, N.C. was redesignated as NAF WEEKSVILLE, ELIZABETH CITY under the commander, Naval Air Bases, Fifth Naval District.

NAS SOUTH WEYMOUTH was redesignated as a naval air facility under the commander, Naval Air Bases, First Naval District.

British Pacific Fleet Is Sizeable

Major Vessels Deployed Against Japs

The British had 125 major warships deployed against Japan as the war ended, British Information Services announced recently.

In addition to these ships, there were numerous smaller vessels such as minesweepers, submarines, frigates and more than 100 supply vessels of the fleet train. Major war vessels included the battleships *King George V*, *Anson*, *Duke of York* and *Howe*, and fleet carriers *Formidable*, *Implacable*, *Indefatigable*, *Victorious*, *Illustrious* and *Indomitable*.

Pilot Training Units Tapering Off

Academic Refresher Course Cancelled

The Navy has issued ALNAV 201 providing for cancellation intake for the Academic Refresher Units under the v-5 program. The ALNAV states that all quotas for entry of enlisted candidates for flight training into the units are cancelled except for men now en route to such training.

The unexpired portions of all orders to proceed to NARU's v-5 issued by selecting commands were cancelled in cases of all selected candidates who have not departed their stations en route to such training. When students in NARU v-5 training and those en route to such training have completed the course, all units will be discontinued.

The transfer of enlisted men to Naval Aviation preparatory training under provisions of BUPERS CL 179-45 is not affected. Refresher training has been given at California Polytechnic, Cornell College, Iowa; Muhlenberg College, Penn.; Murray State Teachers, Kentucky; Northwestern State College, La.; St. Olaf's, Minn.; William Jewell College, Mo.; and College of Wooster, O.

SHOW ME THE WAY TO GO HOME



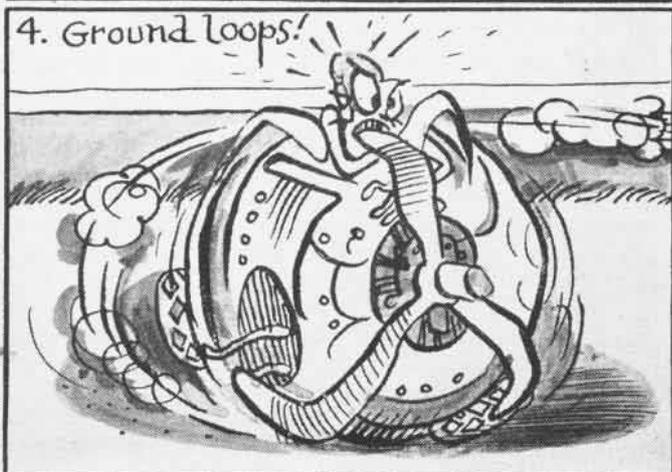
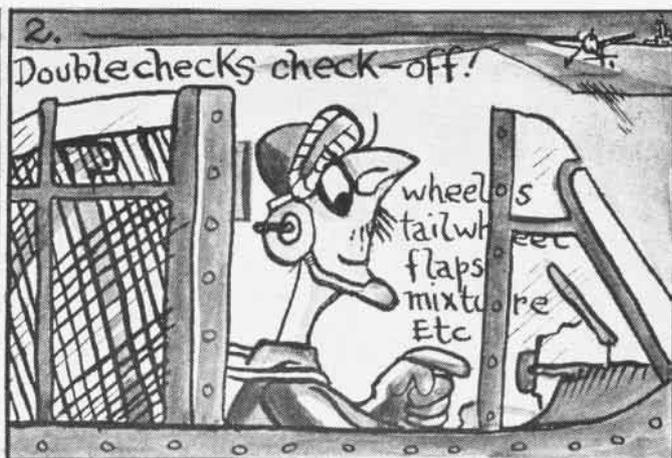
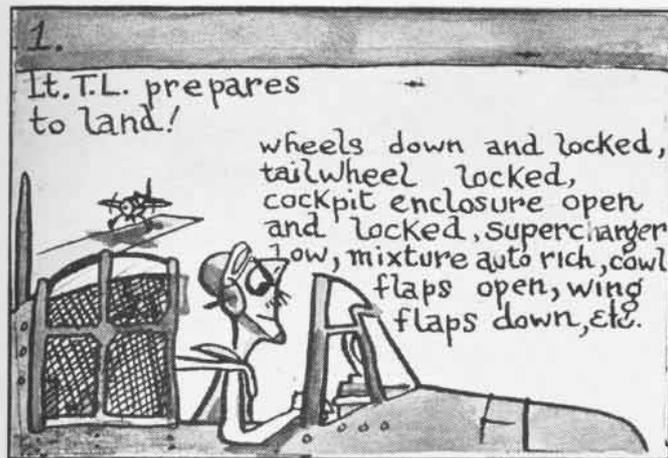
Radar Navigation

From the chart and radar scope photograph with $TH=345^\circ$ and range markers every 10 miles, answer the following:

1. What is your position?
2. How would you report the bearing and distance of Elliott?
3. How would you report the bearing and distance of Oxford?
4. Assuming NAS Patuxent River is your target, what instructions would you give to the pilot?

(Answers on page 40)





SUBJECT: LT. TERRA LOOP

MORAL: Don't stop piloting the airplane until you park it and cut the engine.

A HIGH percentage of landing accidents occur during the landing roll. The causes are, for the most part, pilot error. The pilot is at his lowest ebb of alertness when he lands due to fatigue of the flight. This coupled with the precision necessary to execute the landing and keeping the aircraft under directional control during the landing roll makes this phase of flight a most difficult one. Only constant alertness on the part of the pilot and the cultivation of his ability to keep the airplane in a straight line during the landing roll will help eliminate this type of accident. Don't consider the landing complete just because the aircraft is on the ground. Keep piloting the airplane until it is parked and engine cut. Doping off during the landing roll will place you in the same predicament that confronted Lieutenant Terra Loop.

Be alert—keep the aircraft in a straight line during the landing roll

and you will not be the subject of a typical case history of this type accident.

Case 1. An Avenger pilot coming in for a landing during a familiarization flight landed the aircraft in a normal three-point attitude. During landing roll pilot eased up on his left rudder causing the aircraft to go into a right turn. The pilot corrected for right turn with hard left rudder and brake causing aircraft to turn violently to the left, run off the runway and crash.

Case 2. A Hellcat pilot made a normal approach to the landing runway. He hit wheels first and became airborne going into a slight skid. On second contact and during landing roll the plane was still in a skid and this caused pilot to lose directional control, swerve off the runway and crash.

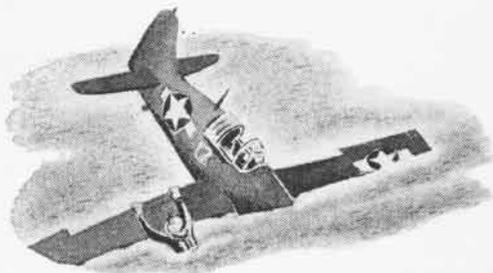
Case 3. A Corsair pilot made a normal approach for a landing. He made a good tail first landing but carelessly left the tail wheel unlocked. When his wheels hit the runway he lost directional control and crashed his plane.

Case 4. A Wildcat pilot planned a poor approach by taking too short a landing interval. During his landing roll the slipstream of preceding plane lifted the right wing making the plane partially airborne and causing the left wing to go down. The pilot was unable to bring up the left wing and dragged it causing airplane to start a violent swerve. At this time he tried to take a wave-off and succeeded in getting plane airborne. Due to continued slipstream and insufficient air-speed, the plane stalled and crashed.

Case 5. An SNJ pilot coming in for a landing during a familiarization flight made a normal approach and a good slightly tailwheel first landing. During the landing roll the pilot carelessly allowed the aircraft to go to the left and subsequent excessive rudder correction unlocked the steerable tail wheel and the aircraft veered to the right. The pilot applied brake and throttle to straighten out but was too late to prevent plane from running off the runway. His plane crashed off the runway.

GETTING RESCUED IS A FINE ART

Downed Navy Pilot Makes Survival Gear Work Hard



CHANCES FOR survival are increased immeasurably when a man makes utmost use of all his gear. This depends on efficient use of the old bean and a little imagination. It's worth the effort. The following statement of survival of a Navy F6F pilot, whose plane hit salt water when a catapult failed to put him in the air, proves the point. He passes on valuable survival pointers:

As my plane left the flight deck it dropped nose down. My first action was to raise the wheels, then come back on the stick. The plane leveled and mushed into the water. It bounced twice; the second time nose down. My parachute and harness, as well as shoulder straps and safety belt, were fastened securely. At first impact I started to unfasten the safety belt. On second bounce my head hit the gunsight and dazed me. The plane was under ten feet of water when I cleared it.

My parachute pack and back pad supported me well in the water. I was about 100 yards off the port beam of the carrier. When I tried to signal with a flashlight, however, I discovered that a one-cell flashlight that had been attached to my helmet was missing. Another, suspended around my neck, had caught on the plane's antenna as I surfaced. I had jerked it free, but in the process it had torn open and the batteries slid out. So I reached for my



whistle and shouted for help. This was heard, and a raft thrown out, but it could not be seen from the water. My .38 revolver, containing tracer ammunition, was fired. Next, parachute harness was cast off and Mae West inflated. I ducked under and removed

my shoes to increase buoyancy, then slipped the pararaft kit out by pulling the handle strap with my right hand and bracing one foot against pack and the other against seat pad. The raft was inflated without difficulty and I crawled aboard. I got out the small hand pyrotechnic projector (carried in flight suit pocket) and fired one red star. The air attack was continuing. My one desire was to let the ship know I hadn't gone down.

Until daylight I bailed the raft with bailing bucket. The pararaft kit was left in the water as a sea anchor. After

daylight I hauled the kit aboard and examined it. Besides this outfit I had survival equipment in my flying suit, including: a flask-type first aid and survival kit, a waterproof first aid kit "homemade" by my air group, extra pyrotechnic shells, neckerchief chart of the Pacific. This, with standard gear, provided me with two sheath knives, three jack knives, six packs of green dye marker, whistle, mirror, an assortment of first aid and food supplies. Eleven paper-wrapped packets of emergency rations containing malted milk tablets, vitamin tablets, and hard candy were estimated sufficient for four days apiece. There were two pint cans of water and a desalting kit.

The raft required constant bailing, and a rubber sponge was very helpful. I was wearing woolen underwear and socks, which would not dry.

At 1730 a Navy air task force circled overhead. Several others appeared during the day. Each time I broke out a dye marker, fired a Very's shell, fired a tracer from my revolver and waved the yellow sail cloth. Once, an F6F dipped its wings.

The mirror, used when sun permitted, was aimed by flashing light between two fingers used to frame the target, because the red button for reflecting a glare on target was missing. Dye marker always was fastened to the raft so it spread a long streak astern.



At 1800 a twin-engine Japanese bomber came over. Immediately I spread the large poncho over the raft and myself, black surface up. Soon after, a flight of Corsairs flew over. By this time the dye marker had spread out. One division of planes zoomed my raft. At 1800 a destroyer was alongside.

Suggestions on Procedure Gained From This Rescue:



1. When hard candy is broken out, place in a dry kit. Tablets melt and become sticky in damp pockets.
2. Dry clothes as soon as possible. Cottons dry quicker than woollens.
3. Keep all gear tied to raft.
4. Always fasten dye marker to raft or self. Thrash water with hands to spread out dye quickly.
5. Make every effort to stay with raft when ditching or bailing out. A man can't survive long in rough water in just a Mae West. A raft is easier to spot.
6. Have a self-lighting flashlight attached to rafts dropped to survivors at night.
7. Relax as much as possible.
8. Pray for all you are worth.

TECHNICALLY SPEAKING

Floats Conserve Sea Anchors

VH-5—Steel-hooped sea anchors are hard to replace, especially at advanced bases. Rescue Squadron Five has solved the problem of retrieving them by constructing floats of balsa, wood or kapok and securing them around the hoop rim, thus rendering the sea anchor unsinkable. It was found that flotation of the anchor in no way hindered its efficiency of operation. And if

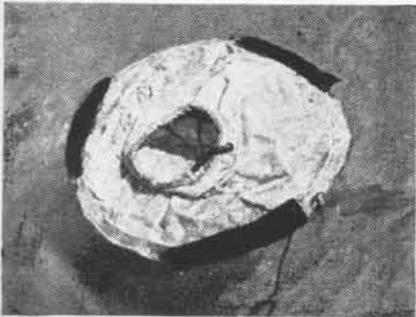
phragm opening in flight is possible, although not readily practicable at the present stage of development.

The new-type mount is not yet in production. It is possible that in many instances the device can be fabricated and installed locally inasmuch as no excessively complicated machine work is involved. In event of large scale production and distribution by the Navy, several improvements on the present

A bar clamp, lever operated, secures the clip against the stringer.

Prior to introduction of this device, a metalsmith or a well-trained operator had to do this job. Using this suggestion, an inexperienced operator, with little instruction, is capable of attaching three times as many clips to the stringers without misfits or rejections as a mechanic could have done.

The originating activity reports an



IT'S A SEA ANCHOR, BUT IT STAYS UP

the anchor must be cut free, it still will float. Personnel boats make pick-ups.

[DESIGNED BY LT. H. C. FLATAU AND ENS. B. H. WARREN]

Canopy Mount for Gun Cameras

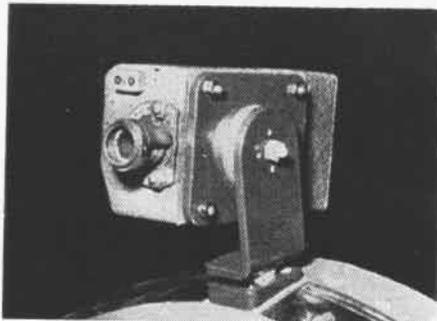
A new-type gun camera mount that locates the camera on the canopy of fighter aircraft directly in front of and above the pilot has been developed at AERONAUTICAL PHOTOGRAPHIC LABORATORY, PHILADELPHIA, at request of BU AER's Photography Division.

Experimental installations indicate vibration, a major obstacle to successful gun camera photography, is about 90 percent less in this new rigid mount than in other types.

Another advantage is the camera can be reloaded in flight, an operation impossible in standard wing installations. Although easily accessible to the pilot, the canopy-mounted gun camera does not obstruct vision to any appreciable degree.

A third feature of the rigid canopy mount is the ease with which it can be boresighted. Pivoted in two places, the camera can be turned a full 360 degrees, vertically or laterally, by loosening two nuts. Serrations in the pivot assemblies provide for positive lock once the desired set has been determined.

Also unique in gun camera installations is the fact that a change of dia-



CANOPY GUN CAMERA MOUNTED ON PLANE

experimental mount are planned. Chief of these would be a streamlined housing to reduce drag and improve appearance.

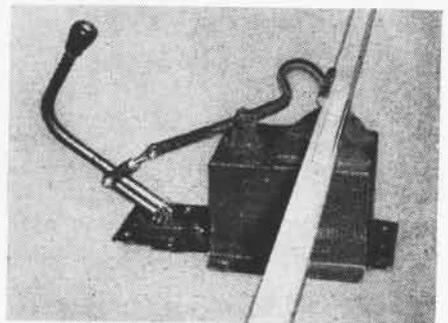
While experimental installations have been limited to the F6F and F8F aircraft, there appears to be no reason at present to prevent successful mounting of the canopy gun camera on most other types of fighter aircraft. Even in its present rough form, the amount of drag is negligible, having been estimated at 40 pounds at a speed of 400 knots.

Fleet operational units are requested to comment on development of the canopy mount for fighter aircraft. With its elimination of vibration and ease of access, it solves a definite problem in gun camera photography. The slight amount of drag it produces on the aircraft may be reduced further in the construction of a streamlined housing for the unit.

Device Cuts Work on PBY Hulls

NATB PENSACOLA—A civilian employee here has designed a fixture to improve methods for attaching belt-frame clips to bottom stringers on PBY hulls.

A metal base supporting guides corresponding to size and shape of the stringer permits ready alignment of the clip for the drilling operation.



FIXTURE SAVES STATION \$1920 ANNUALLY

estimated annual savings of \$1920 through use of device, which was designed under the NAVY EMPLOYEE'S SUGGESTION PROGRAM.

[DESIGNED BY NATHAN BECKER]

Film Teaches Aircraft Painting

With increased demand for high performance aircraft, BU AER has placed additional stress on the effect of aerodynamically smooth surface finish in producing higher speeds or greater range at a given speed. As part of this program a new training film has been produced to provide visual instruction in proper painting technique.

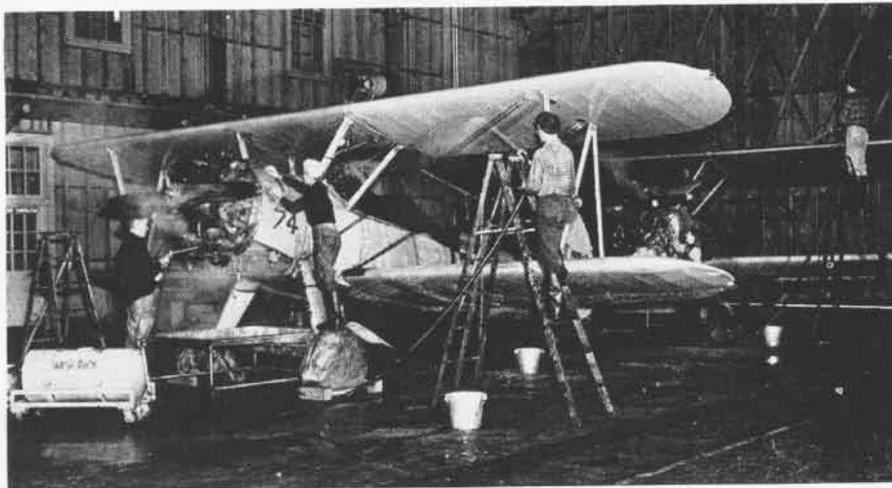
This film, entitled *Painting Naval Aircraft*, has been produced in color and depicts steps to be followed in order to insure application of the best possible finish. The scenes were photographed at NAF PHILADELPHIA. This motion picture covers the subject from stripping of the old worn-out finish to the final waxing and polishing operation. Descriptive commentary gives important points of technique to be observed by aircraft painters when working with naval aircraft.

Production "rushes" currently are being assembled into the completed film, and it is expected that *Painting Naval Aircraft* MN-3636 will be ready for distribution soon to A&R shops and other naval activities interested in application of paint to surfaces of naval aircraft.

Primary Station Installs Indoor Wash Rack For Training Planes

NAS BUNKER HILL — A satisfactory year-round indoor wash rack for airplanes now is in operation at this station. The wash rack crew, consisting of 12 enlisted men and 12 civilian high school boys, using the indoor system, can wash from 30 to 40 planes each day. A check-off list is used to avoid dup-

lukewarm temperature, and compressed air are installed. At the first station, engine and mount of the plane are sprayed with kerosene, emulsine or magnasol, most of which is caught in a mobile drip pan. Workmen also wet down the aircraft, except engine, so soap may be applied at station two.



PLANES STARTING THROUGH WASH RACK LINE GET KEROSENE SPRAYED ON ENGINES

lication on the initial wash program for assigned aircraft. Subsequently planes are washed when necessary prior to check periods. Wash crews adhere to specifications in *Instructions for Washing and Cleaning Airplanes*, issued by the A&R department.

The wash rack accommodates six aircraft nose-to-tail. At three locations hot and cold water, mixed to the proper

At the second station the plane is soaped and the engine rinsed. Surveyed wool lining from flight gear, mounted on frames or handles, is used for soaping. The wool is dipped into a castile soap solution and applied to the plane.

Men at station No. 3 rinse the plane and with compressed air completely dry engine and all close fitting joints. Kerosene cleaning, followed by soap and

water and chamoising or plastic cockpit enclosures, completes the washing.

To spray the engines, several mobile kerosene or cleaning agent containers together with suction spraying guns and hose are needed. Greasy areas on fabric are hit with the swab emerged in cleaning agent and immediately washed off with soap and water.

To prevent the hazards of a slippery deck around the wash rack, experiments are underway to use silicate of soda sprinkled with dry sand before the chemical dries.

Airborne Radar Is Downgraded

The story of airborne radar, long kept under the wraps of a CONFIDENTIAL classification, now is out in the open.

When the war began, radar equipments were heavily guarded, referred to cryptically as "black boxes" and locked in secret vaults. Even after radar became as much a part of most aircraft as their machine guns, discussion of its functions was kept to a minimum. Recently, however, most of the electronics devices currently installed in naval aircraft were downgraded to RESTRICTED by the Chief of Naval Operations, and the U.S. public is hearing certain unclassified stories of how radar helped sink the Japanese navy.

Not only radar but numerous countermeasures such as jammers and a number of IFF models and electronics bombing aids now are classified RESTRICTED. The AN/APS-6 night-fighter radar, AN/APS-4 search radar used on many carrier aircraft, and the AN/APS-2, -3 and -15 carried by patrol planes and bombers have all been stepped down from CONFIDENTIAL to RESTRICTED. Certain equipments that formerly were restricted, including the AN/APN-1 radar altimeter have been moved down another notch to UNCLASSIFIED.

Numerous electronic equipments that are not yet widely distributed still are CONFIDENTIAL. To assist field activities in revising security classifications, a new issue of the *Nomenclature List for Bureau of Aeronautics Aircraft Electronic Equipment*, CO-NAVAER 08-5Q-227, will be distributed shortly. The publication will list all equipments in one column, security classifications in a second and concise descriptions in a third. Until the *Nomenclature List* is available, personnel may consult a list of security classifications in the September 10 issue of the *Digest of U.S. Navy Airborne Electronics*.

Publications for many electronic equipments, including *Handbooks of Maintenance Instructions*, also are being downgraded to RESTRICTED. For certain other equipments, however, publications will still remain CONFIDENTIAL.

Succeeds List of 1 August 1945

1 September 1945

LIST OF NUMBER AND DATE OF LATEST ISSUE OF AIRCRAFT SERVICE CHANGES AND BULLETINS

Airplane	Bulletin	Date	Change	Date
F6F	122	8-21-45	90	7-16-45
FM	55	8-1-45	61	7-25-45
F4U-F3A-FG	244	8-17-45	228	7-30-45
F7F	20	6-29-45	20	8-20-45
FR	4	8-20-45	1	7-4-45
JM	40	8-11-45	46	8-1-45
JRB-SNB	36	8-9-45	27	3-20-45
PV	159	8-22-45	169	6-27-45
PBJ	61	8-14-45	76	8-17-45
PBM	135	8-24-45	170	8-10-45
PBY	126	8-24-45	186	7-18-45
PB2Y	73	8-9-45	156	8-9-45
PB4Y	175	8-24-45	165	8-7-45
R5C	58	8-22-45	141	8-22-45
R4D	47	8-13-45	42	8-7-45
R5D	69	8-11-45	118	7-18-45
RY	71	8-24-45	31	8-14-45
SB2C-SBF-SBW	218	8-11-45	151	8-7-45
SC	86	8-21-45	41	8-7-45
SNJ	37	8-1-45	0	0
TBF-TBM	208	8-1-45	241	8-7-45
TBY	14	8-18-45	1	7-25-45

For complete list of Aircraft Service Changes and Bulletins, see *Naval Aeronautic Publications Index* NAVAER 00-500 and supplement 00-500A.

PUBLICATIONS

The following Aviation Circular Letters, Technical Notes and Technical Orders have been issued since 1 August 1945. Copies are available on request to Publications Branch, Bureau of Aeronautics.



AVIATION CIRCULAR LETTERS

- 84-45 *Minimum Operating Qualifications for Airplanes to be Ferried.*
- 85-45 *Transfer of Surplus Material at Prime or Sub-Contractors' Plants to Naval Air Activities.*
- 86-45 *Administrative Aircraft.*
- 87-45 *Integrated Naval Aeronautic Maintenance, Material and Supply Program. (Cont.)*
- 88-45 *Civil Aeronautics Administration Inspection Service for Air Traffic Control Towers.*
- 89-45 *Aeronautical Information, Continental United States.*
- 90-45 *Defective Parawing Kit Containers—Modification of.*
- 91-45 *Class 265—Miscellaneous Aeronautical Material—Designation of Repair Facilities for. (Joint Ltr.) Airport Field and Seadrome Lighting.*
- 93-45 *ACL No. 85-44, Correction of.*
- 94-45 *Reciprocal Transit of Military Aircraft, United States—Mexico.*
- 95-45 *Combined Aircraft Weather Report Code, Short Title, CAW-C.*
- 96-45 *Contractors' Reports Regarding Service Deficiencies.*
- 97-45 *Aircraft Bubble Sextants—Shortage of. (Joint Ltr.) Emergency Purchases Report Form: SandA Form 459.*



TECHNICAL NOTES

- 69-45 *Light, Electric, Attachable, Small, 1-Cell, Stock No. R-17-L-11798—Issue of.*
- 70-45 *Normal Flying—Definition of.*
- 71-45 *Split Headsets for Radio Countermeasure Aircraft.*
- 72-45 *Applications of the Oxygen Mask Retainer Clamp, A.S.O. Stock #R83-C-17000.*
- 73-45 *Use of Parachutes over Water.*
- 74-45 *Parachute Rip Cord Jamming Against Rip Cord Housing.*
- 75-45 *Parachute Cluster for Installation in the Airborne Lifeboat (AR-8).*
- 76-45 *AR-8 Airborne Lifeboat—Description & Instructions for Rigging to PBV Aircraft for Dropping.*
- 77-45 *AR-8 Airborne Lifeboat, Operation in Water—Instructions for.*
- 78-45 *Rain Repellent and Anti-Fogging Compound for Application to Surfaces of Windshields and Transparent Closures.*
- 79-45 *The Formation of Ice on Aircraft.*



TECHNICAL ORDERS

- E-45 *Model F6F-5 Airplane Take-Off and Flight Characteristics with 11.75 Inch AR (Tiny Tim) Installed. (Cont.)*
- F-45 *Modification of AN/APS-6 and AN/APS-6A Components to Reduce Pin Voltage Gradients. (Cont.)*
- 69-45 *Aircraft Clocks—Mounting of.*
- 70-45 *Rockets—Instantaneous Salvo Firing—Prohibition of.*
- 71-45 *Model PBV-5, PB2B-1, and PB2B-2 Airplanes Restrictions to be Observed in Operation.*
- 72-45 *Model F8F-1 Airplanes, Restrictions to be Observed in Operation.*
- 73-45 *Hydraulic Equipment—Fluid for Testing and Storage.*
- 74-45 *Integral Fuel Tanks Sealed with Stoner-Mudge S1711R Sealant—Repair of.*
- 75-45 *AR-10 Pneumatic Boat—Packing in Carrying Case, Procedure for.*
- 76-45 *Model F6F Airplanes—Armament Provisions—Wing Bomb Rack Stores—Catapulting Restrictions.*
- 77-45 *Model TBY-2 Airplanes Restrictions on Operation.*
- 78-45 *Navy QuickFit Seat Type Parachute and Harness.*
- 79-45 *Low Pressure Hose Assemblies—Resistoflex Corporation—Replacement of.*

[Continuation of July list]

- 54-45 *Fuel and Oil Tanks—Preparation of for Repair.*
- 55-45 *Integral Fuel Tanks Sealed with Stoner-Mudge S1711R Sealant—Repair of.*
- 56-45 *Fuel Tanks—Preparation of, For Repair to the Airplane.*
- 57-45 *Maintenance and Overhaul Instructions for Aircraft Engine Spark Plugs, Mica and Ceramic Types.*
- C-45 *(Cont.) Noise Reduction of AN/APS-4*

Bolt Pin Removal Plan Adds Speed

NAS QUONSET POINT—A machinist here has developed a faster, more efficient way of removing crankshaft bolt pins without mutilating pin or the bolt on P&W 2800 engines. The pins formerly were removed by using a drift which, in many cases, would break in the hole.

Crankshafts of the engine are made up of three sections fastened together



OPPOSITE TURNING EASES PIN MOVING

with two crankshaft section fastening bolts. The bolts are pinned in the front and rear sections with two pins .094" in diameter. By merely turning the threaded section and nut in opposite directions locking pin is removed without damage to the pin or crankshaft. The idea was submitted under the EMPLOYEE SUGGESTION PROGRAM.

[DEVELOPED BY FREDERICK H. THAYER]

Watch Use of Dye Sea Marker!

Sea markers containing soluble sodium salt of fluorescein have been provided with life rafts and life vests carried in naval aircraft. This salt when immersed in sea water produces a yellow-green slick that has proved extremely effective in locating survivors.

To continue fluorescein dye sea marker's effectiveness in rescue operations, its indiscriminate use as target material for aircraft gunnery practice and for marking purposes should be stopped. Many false reports of survivors being adrift can be attributed to this practice. Rescue activities have spent fruitless hours of search, diverting their facilities from bona fide distress incidents.

To preclude future difficulties of this nature, BuAER is attempting to develop and procure suitable agents for marking purposes in lieu of fluorescein dye in operations not involving air/sea rescue. It is not anticipated that the proposed

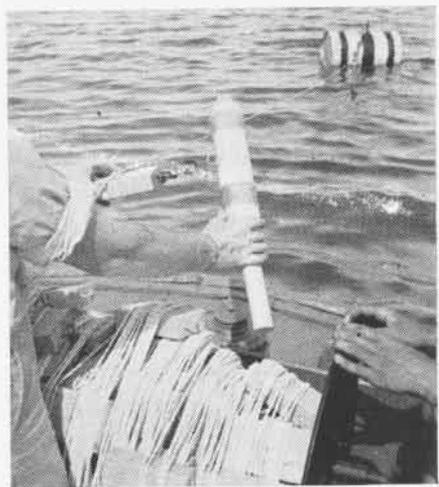
substitute materials will be available immediately, and it is necessary that interim measures be taken to maintain the effectiveness of fluorescein dye as an aid to survivors.

In such cases where use of dye marker is considered imperative to other than air/sea rescue, the cognizant air/sea rescue activity in the area should be informed immediately as to time and location of such use.

Seadrome Nights Made Brighter

VH-5—Hazards involved in night emergency landings and take-offs of seaplanes, on seadromes not equipped with night lighting equipment, have been alleviated by this squadron in a simple, efficient manner. A lighting system providing a 2000-foot string of lights that may be rigged in ten minutes and is visible for five miles from the air was constructed of salvaged material plus items readily available.

Primary item is the floating electric water lantern, part of the squadron's rescue equipment, deriving its source of power from four dry cell batteries, and providing light 12 to 14 hours. These lights are spaced at 200-foot intervals on 2000 feet of light line. Wood floats, spaced every 25 feet, buoy the line. The float line is contained on a



LIGHTS ON A LINE FOR NIGHT LANDINGS

steel reel, made to squadron design from scrap. In setting out the equipment, the line end is secured to a buoy, then is payed out over the stern of a personnel boat right from the reel. Lanterns are snapped on every fourth buoy as line is payed. One empty five-gallon can is snapped on the line at the 1000-foot mark and another at the end to increase resistance to wind and insure that the string of lights will stream true. Three men can handle all equipment with ease. After use, the line is reeled in, lights unspapped, and gear is ready for next emergency.

[DESIGNED BY LT. H. C. FLATAU, LT. A. SPORER, ENS. B. H. WARREN]

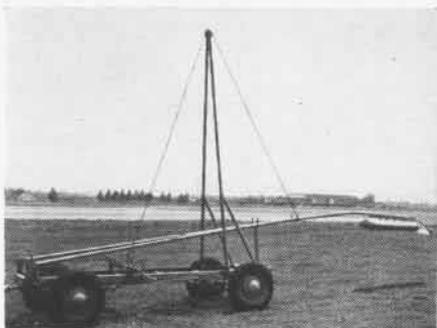
AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Mobile Tow Target Launcher Developed

Losses of MARK 20 type aircraft targets and towing cable have been greatly reduced at NAS DELAND by use of a mobile tow target launcher built by the ordnance department of that activity from a design by ordnance personnel at NAS DAYTONA BEACH.

The launcher consists of a mast and raisable boom mounted on a MARK 1 bomb trailer. The boom is made of standard 2" pipe, has welded joints and a fork at the outer end. A tow target container, MARK 1 MOD 2, is attached to underside of boom just behind the forked end. After the launcher is wheeled to the starboard side



MARK 1 TRAILER CARRIES TARGET LAUNCHER

of the runway 900 feet ahead of the take-off starting line, the sleeve is packed into the target container, and the ring in the forward end of the target is secured to the fork by means of a spring steel clip and double bungee.

A hand winch and cable, attached to the trailer, provide means for elevating the forked end of the boom and the sleeve to a height of approximately 20 feet. Illustration shows the launcher in position by the runway with the sleeve packed into the container and the target ring secured in place.

Ordinary drag take-off procedure is used, the only difference being that the launcher instead of an ordnanceman holds the target. With proper technique the target will be whipped from the container and, although it will dip somewhat, it should not drag on the ground.

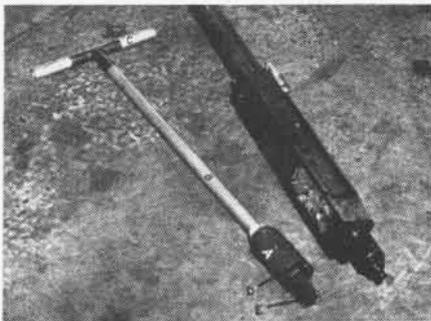
Although primarily designed for use with the MARK 20 high-speed target that streams considerably below the tow plane, this device also may be used to launch targets of MARK 7 types. Use of the launcher eliminates dragging on the ground and decreases the hazard to personnel otherwise present whenever the targets are tossed by hand.

Tool Eases Handling of 20 mm Cannons

Ordnancemen of NAAS CECIL FIELD have designed and manufactured a tool that has proved very satisfactory in minimizing the time and effort required in installing and removing 20 mm cannon from SB2C type aircraft, according to current reports.

In using the tool, the installation time, including mounting, connecting and adjusting, is about 4 minutes, 45 seconds. The time for disconnection and removal is approximately 1 minute, 50 seconds. This halves the time required without use of tool.

Simple in design and rugged in construction, the tool was manufactured en-



TOOL FITS OVER REAR BUFFER ASSEMBLY

tirely of scrap metal. Material used consisted of one piece of 2½" pipe, 7½" long (See A in top cut) and one piece of 1" pipe, 31" long (B) to which is welded a cross-piece 14" long (C), also made of 1" pipe, forming the handle. The overall length is 39 inches.

A cup is formed by the length of 2½" pipe and fits over the rear buffer assembly. The cut is notched (D) to allow it to slip by the rear buffer lock plunger. A tongue left on the leading edge of the cup (E) bears against the gun receiver proper when gun is supported by tool.

The tool as designed offers an extension to the cannon when it is removed from or installed in the plane. The extension is



ORDNANECMAN PUSHES 20MM GUN IN WING

desirable as the gun reaches forward of the trailing edge of the diving and landing flaps into the interior of the wing. The gun must be supported by a man on the wing reaching down through the feed mechanism door. A man stationed at the trailing edge of the wing pushes the gun forward through the opening in the rear beam. Without the tool, he is unable to give any assistance to the man on the wing who must bear almost the entire weight of the gun.

To fit the cannon's rear mounting lugs in the rear mount bracket assembly, the

gun first must be rotated approximately 14 degrees, then pushed into place. E. J. Cummings, AOM2C, designed the tool. BUORD recommends this tool to aviation activities using the *Helldiver*.

Circuit Tester for Mk 50 and 51 Racks

A valuable time saver for testing the bomb arming and release circuits of aircraft equipped with Bomb Rack MARK 50 or MARK 51 types has been designed and built by an ordnance instructor of NTSCH (ADV. AOM) JACKSONVILLE.

By means of this tester, it is possible to determine without removing the bomb rack whether an electrical failure is in the aircraft wiring circuit or within the bomb rack itself. This feature is especially beneficial in the case of carrier-based planes where repeated missions place a premium on the briefest possible down time for maintenance.

Articles used to manufacture the tester can be procured locally and consist of the



LAMP GLOWS WHEN CIRCUIT IS COMPLETE

following: a plexiglas cover and a 24-volt lamp and socket from a rocket circuit test plug, one receptacle AN3102-148-58 with flange machined off, and 3' of ground wire with a 1½" battery clip secured to one end.

To use this tester, the electrical cable leading to the bomb rack is disconnected from the rack. The tester then is plugged into the free end of the disconnected cable, and the ground wire secured to the rack or metal structure of the aircraft by the battery clip. With the battery and master switch on, the nose arming switch is placed in the ON position. If the circuit is complete, the test lamp will glow. The same procedure is used for the tail arming circuit (with nose arming switch in OFF position). To test the release circuit, the arming switches must be in OFF position, the rack selector switch on and the pickle depressed. If the release circuit is complete, the lamp will glow.

Inasmuch as this testing device can be fabricated from items already available at most activities, BUORD does not plan to furnish the item for general distribution, but recommends it for use by interested activities which utilize similar equipment.





WORKING PARTIES, BRAVING THE TROPICAL HURRICANE, PICKED UP AND SECURED LOOSE TIMBERS, THUS PREVENTING FURTHER DAMAGE

TROPICAL HURRICANE

WHEN the worst hurricane in many years hit NATB CORPUS CHRISTI on August 25-27, it did extensive damage to installations, but forewarned by aerology, careful and adequate precautions minimized the loss.

Progress of the storm sweeping in from the Gulf was carefully watched and when it became evident on the afternoon of August 25 that the base was in the hurricane's path, plans were well established.

The business of removal of aircraft in accordance with the fly-away bill was accomplished with dispatch and more than 1700 planes of all types were flown to refuge centers at Dallas, Del Rio, Eagle Mountain Lake and Norman. Two were damaged in landing.

Starting with gusts up to 40 mph on the afternoon of August 25, the storm increased in intensity until it reached its peak between 0000 and 0100 on August 27 with average winds of 83 mph and gusts that exceeded the capacity of the anemometer, estimated up to 125 mph, as the storm center passed about 30 miles east of the base. By 0800 velocity of wind was down to 30 mph. Torrential rain accompanied the storm.



NO MAJOR INJURIES TO PERSONNEL OCCURRED ALTHOUGH PROPERTY LOSS MOUNTED HIGH



TWO BUILDINGS WERE RIPPED APART BY THE WIND, MANY OTHERS WERE BADLY DAMAGED



PRISONERS OF WAR WERE EVACUATED FROM THEIR TENT COLONY BEFORE STORM HIT BASE

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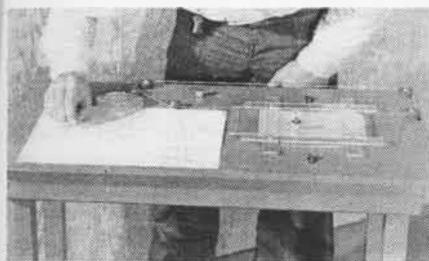
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Radar Device Aids Instruction

NAS SAN DIEGO—A lieutenant on the staff of the Airborne Radar Training Unit has designed a "B" Scan Projector for plotting the picture seen on a "B" scan type of radar from a map of proper scale. He was assisted by the instruction staff of HEDRON 14-1, and the device was built by the Training Devices Unit.

The device was designed and de-



SAN DIEGO DESIGNS "B" SCAN PROJECTOR

veloped to help explain the interpretation with associated distortion of this type of presentation to a student. Technically, the device plots an "inverted mercator" type map from a polar type map. This is accomplished by means of a tracing arm, slides, strings, etc. It was planned to be simple in design.

The device is mounted on a bed or table with the map or view under consideration on the right hand side. A tracing arm with a longitudinal slot in

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it rotates about a hole that represents zero range. In this slot slides a tracing pointer that is directed by hand around the map. By means of a cord wound around a bearing wheel mounted on the tracing arm, motion is brought over to the bearing slot on the left. The bearing cord is continuous except at the tracing arm slot.

A cord fastened about the tracing pointer and running down through the hole, under the bed, and up the left rear side of the table imparts motion to the range slot. Slack in the range cord is taken up by a weight that exerts continual tension on the range slot. A stylus bushing riding in the range and bearing slots collects both motions and provides a hole for the pencil to trace.

Operation of the device consists mainly of explaining the working of the radar under consideration as regards the "B" scan, and either plotting or having the student plot several lines of various shapes to compare the view from cockpit of a plane and "B" scan.

From operation of the projector the student can see the reason why the objects appear as they do on the "B" scan and soon thereafter give the pilot the word as far as interpreting the shape of objects showing up on the "B" scan type radar.

[DESIGNED BY LT. D. C. HULBERT]

Failure Of A-7 Magazines Is Remedied

Two part failures on the A-7 magazines have been reported by Fleet units. A technical representative of the company manufacturing the magazine has made a report from a forward area outlining repairs that can be made in the field.

The taper pin holding winding gear miter gear to the magazine wind shaft has failed in a number of instances. This failure may be remedied in two different ways. The first is to cut a new taper pin made from steel of greater strength. This may be accomplished easily in any work shop.

The second method is to reform the round drive shaft into a square. The hole in the winding gear also is squared to accept the shaft. A taper pin is used as before to hold the two parts together. A considerable amount of filling-in and machine work will be necessary in order for the two parts to fit snugly. However, if tools are not available for this work, shims may be cut to fit around the drive shaft in order to fill space lost in the squaring process.

Another failure has been encountered where the metering roller pinion is staked to the metering roller. Only slight pressure is needed to break the stake marks and detach the two parts. This may be corrected by sweating the metering roller pinion into the end of the metering roller. The hub of the metering roller pinion is heated and a thin coating of solder placed around the rim. The hub is again heated and pressed into the end of the metering roller.

Pacific Areas Report Defective Wiring

Recent reports from COMAIRPAC indicate that N4A and N6A gun cameras received in the forward Pacific areas have been improperly wired. This difficulty has appeared only recently. It is believed to be the result of careless handling by repairmen in gun camera overhaul shops rather than defective manufacture.

Wiring in the shutter compartment has been damaged by being caught in the gear mechanism. Since the wires in this part of the camera are particularly susceptible to damage, camera repairmen should be extremely careful that they are properly installed.

Note on Kodabromide Paper, Contrast 5

Photographic activities are advised that Kodabromide Paper, Contrast 5, now is being distributed from supply depots. This paper should be inventoried as Contrast 4 and shown on the quarterly report under that stock number.

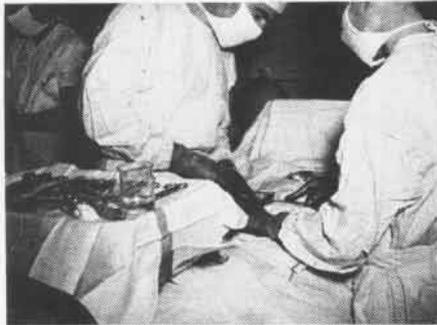
Kodabromide, Contrast 5, is the same as the Kodabromide, Contrast 4, formerly stocked and is similar to Ansco Brovira, Contrast 4, and Velour Black, Contrast 4. The present Eastman Contrast 4 is an addition to its commercial line and is not being procured for Navy use. Contrasts 1, 2 and 3 remain unchanged at this time.

SCREEN NEWS

Blessing Undisguised. As the holocaust of conflict once more passes from the mortal scene, mankind licks its wounds and begins again. Yet the curse of war is not unmixed with blessings. Improvement of surgical techniques, for instance, given impetus by the war, will carry over into the peace the merciful benefits of medical skill. A new *Medicine in Action* release proves the point:

MN-37261 *Medicine in Action Release No. 9—Multiple Wounds—Report of a Battle Casualty—Restricted, 13½ min., in color*

This is the case history of a soldier who stepped on a land mine, had his foot



WAR PUSHED SURGERY TO NEW FRONTIERS

blown off, was blinded and received scores of minor wounds. Twenty-five years ago, he would never have gotten home alive. In this war, even though he was not operated on for 15 hours, this man was restored to as nearly normal a life as can be led by a blind amputee.

The progress of the casualty is followed from treatment to treatment. Demonstrated: his emergency treatment in the field, guillotine amputation of a leg and dressing for traction, treatment of minor leg wounds, cleaning and debridement of facial wounds, grafting of skin, surgery on both eyes, reamputation at Walter Reed Hospital and, finally, rehabilitation at a school for the blind. The patient is shown walking about the hospital grounds unassisted; washing, dressing himself making his own bunk, etc. He marries a girl he met at the hospital and gets a job using one of the skills he learned there.

Death Takes the Careless

MN-4353a *Flight Safety—Spins and Stalls* Restricted, 20 min.

A healthy respect for the message contained in this motion picture is earned at the outset by the simple statement that in two years following Pearl Harbor, stalls and spins put almost as many pilots out of action as the enemy. The narrative gets down to cases by giving the history of a

number of typical accidents. Factors causing the casualties are explained by animation and by straight photography.

Five sets of rules are set up for avoiding stall-spin accidents. The rules cover: normal landing approaches, authorized low flying, spins following take-off, simulated emergency and small field practice, and faulty recovery technique.

Fluid Flow.

MN-5027b *Fluid Flow in Hydraulic Systems—Unclassified, 8 min., color*

Animation and photography illustrate the nature of liquids, types of flow, causes of types of flow. Flow through pipes and orifices is demonstrated, including an explanation of such factors as velocity, size of pipe, density, pressure, viscosity.

A companion film, MN-5027A *Basic Hydraulics*, was distributed some weeks ago.

Other Films Shipped:

- MN-5876 *A Report on Airborne Rockets* Confidential, 20 min.
- MA-6010 *The Gun Camera Program for Flexible Gunnery Training—Restricted, 16 min.*
- SA-5983a *Type F1 Automatic Pilot—Part 1—Principles of Operation—Slide film, Restricted, 51 frames*
- SA-5983b *Type F1 Automatic Pilot—Part 2—Principles of Operation—Slide Film, Restricted, 68 frames*
- SA-5983c *Type F1 Automatic Pilot—Part 3—Operating Procedures—Slide Film, Restricted, 31 frames*
- SA-5989e *Aircraft Camera S-7—Operational Principles and Instructions—Slide Film, Restricted, 52 frames*
- SA-6053 *Aircraft Camera Magazine Type A-8—Maintenance and Lubrication—Sound Slide Film, Restricted, 20 min.*
- SA-5196 *Heated Wing, Empennage & Windshield Anti-Icing System* Slide Film, Restricted, 37 frames

Where to Get 'Em. Central Aviation Film Libraries and Sub-Libraries are listed below:

<i>NAVAL</i>	NAS San Diego
ABATU, NAS St. Louis	NAS Norfolk
CASUs 2, 4, 23, 24, 31,	NAS Navy #115
32, (F)42	NAS Navy #117
CasComDet, Port	NAS Navy #720
Hueneme	NATB Pensacola
ComAirPac	NATB Corpus Christi
ComAirSubComFwd-	NATEC Lakehurst
Area	Navy #3233
Hedron TWO	TAL Navy #116
NAB Seattle	
NAC Navy #3149	<i>MARINE</i>
NAMC Philadelphia	MCAD Miramar
NAOTC Jacksonville	MCAS Cherry Point
NAS Atlanta	MCAS El Centro
NAS Clinton	MCAS Ft. Toro
NAS Grosse Ile	MCAS Mojave
NAS Kodiak	MCAS Navy #61
NAS Moffett	MCAS Parris Island
NAS New York	MCAS Quantico
NAS Patuxent	MCAS Santa Barbara
NAS Quonset	4th MAW

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ANSWERS TO QUIZZES

● BEST ANSWERS (p. 26)

1.b 2.a 3.c 4.a 5.c

● NAVIGATION PROBLEM (p. 28)

1. Lat. 38° 27' N.
Long. 76° 11' W.
2. Elliott: Bearing 168° Starboard, Range 11 miles.
3. Oxford: Bearing 10° Starboard, Range 16 miles.
4. Patuxent River: Turn Port 110°, Range 21 miles. or Patuxent River: Fly Magnetic Heading 228°.

● GRAMPAW'S QUIZ (p. 22)

1. Speed at any altitude shall not exceed 1.1 times the maximum speed attainable in sustained level flight at that altitude using normal rated power; acceleration shall not exceed 2 "g"; angle of bank shall not exceed 45 degrees. Ref.: TN 70-45.
2. 15° on either side of neutral. Ref.: Page 81 of *Erection and Maintenance Manual*.
3. Magnetic Heading Indicated Altitude (ft. above sea level)

0°-89° inclusive	Odd thousands
90°-179° "	Od' thousands plus 500
180°-269° "	Even thousands
270°-359° "	Even thousands plus 500

 Ref.: CAR 60.24
4. Automatic. Ref.: TO 111-44.
5. Mandatory; to be accomplished within the time limit specified in the change. Ref.: *BuAer Manual*, Art. 10-105.



The Cover. Two big carriers, the *Langley* and the *Ticonderoga*, followed by three battleships steam into fleet anchorage in this spectacular telephoto shot taken off the Jap coast

SCREEN NEWS

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For God's Sake... How Many More

EVERY LSO who has made night landings remembers his first experience, but no man ever took over the paddles with more apprehension than R. M. Lindsey. It was the second night of the Midway Battle, and most of the pilots had never made a night carrier landing. They had absolutely nothing on the LSO.

The crew waited uneasily for planes to return. Lindsey listened for the low roar of approaching engines . . . strained his eyes for the flare of an exhaust. One fighter approached, took its cut, and bounced to a stop in the arresting gear. Tension eased.

All at once, it seemed, planes entered the pattern in increasing numbers and swarmed around the carrier. Lindsey brought them in quickly and efficiently—one, another, and another. The sound of additional planes filled the sky. Lindsey swung around to his assistant.

"For God's sakes—how many more?"

"Dunno. . . . Already have five more than we launched."

Lindsey felt a spine-tingling chill of uncertainty. He barked an order.

"Call the bridge. . . . Have 'em inspect all planes for meatballs."

A thorough tour of the flight and hangar decks revealed no stray Sons of the Rising Sun. Extra planes were from the "Hornet." Lindsey grinned at his fancied notion, loosened the grip on his paddles and relaxed. The job was over. He hadn't lost a plane or a man.

R. M. Lindsey's debut as night LSO won him a letter of commendation.

**KEEP YOUR
EYE ON THE LSO**

No. 3 of a series

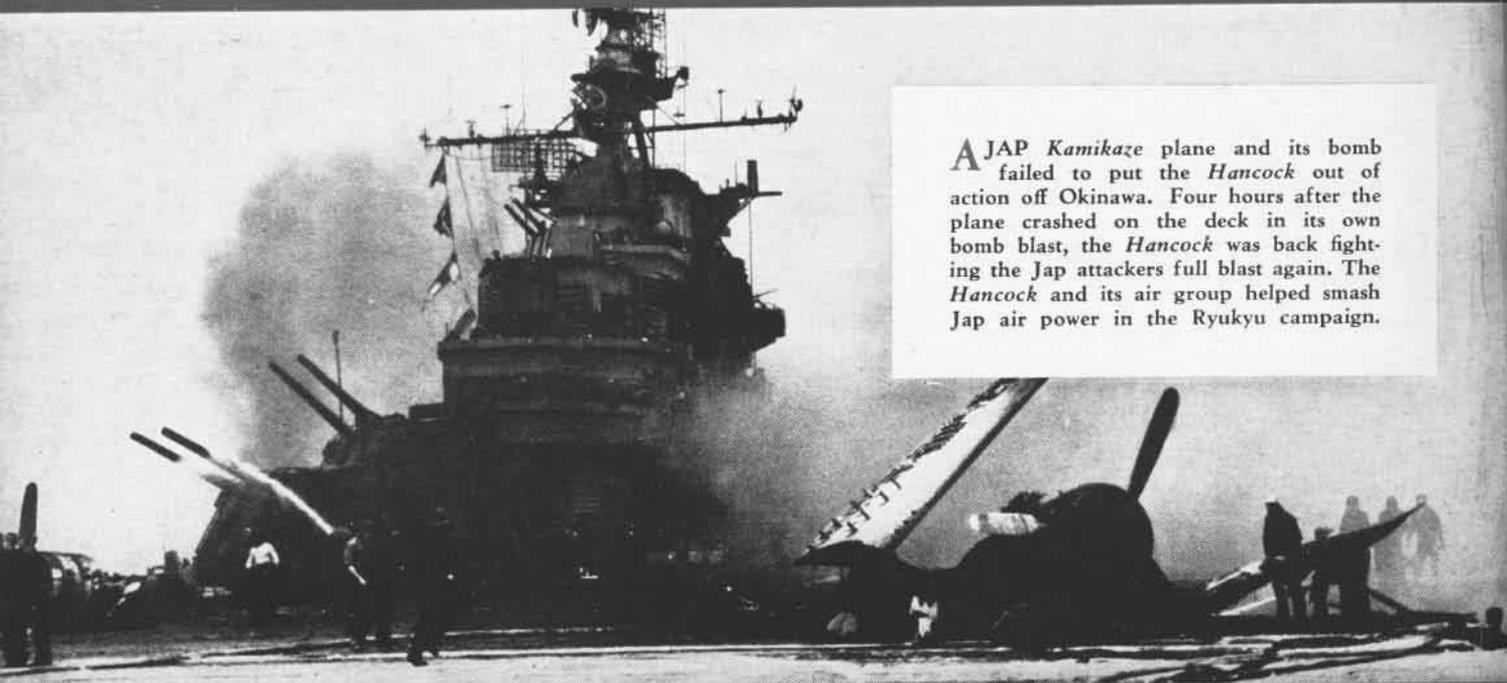




After Jap Kamikaze Attack



HANCOCK Fighting Four Hours



A JAP Kamikaze plane and its bomb failed to put the *Hancock* out of action off Okinawa. Four hours after the plane crashed on the deck in its own bomb blast, the *Hancock* was back fighting the Jap attackers full blast again. The *Hancock* and its air group helped smash Jap air power in the Ryukyu campaign.