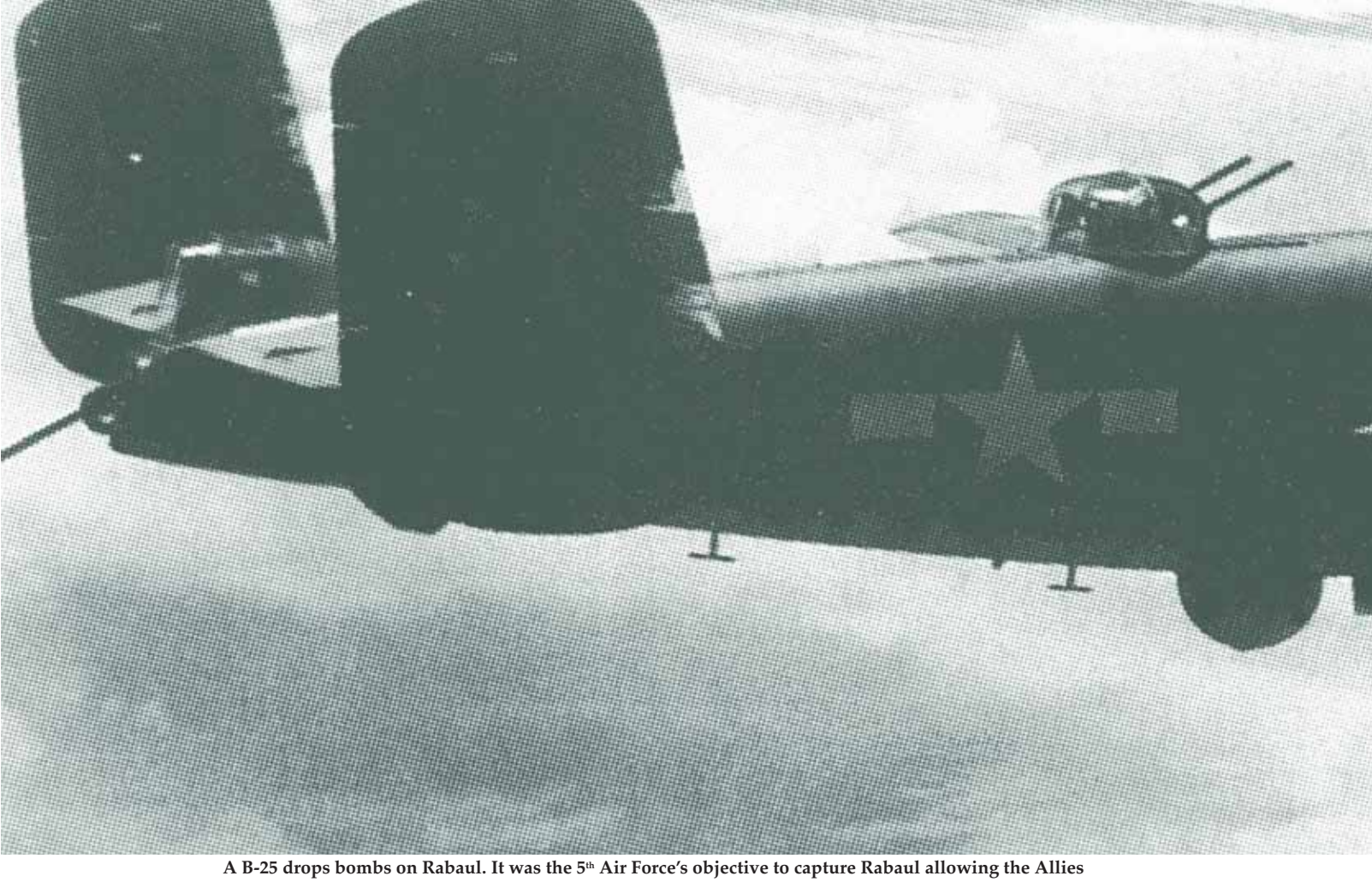
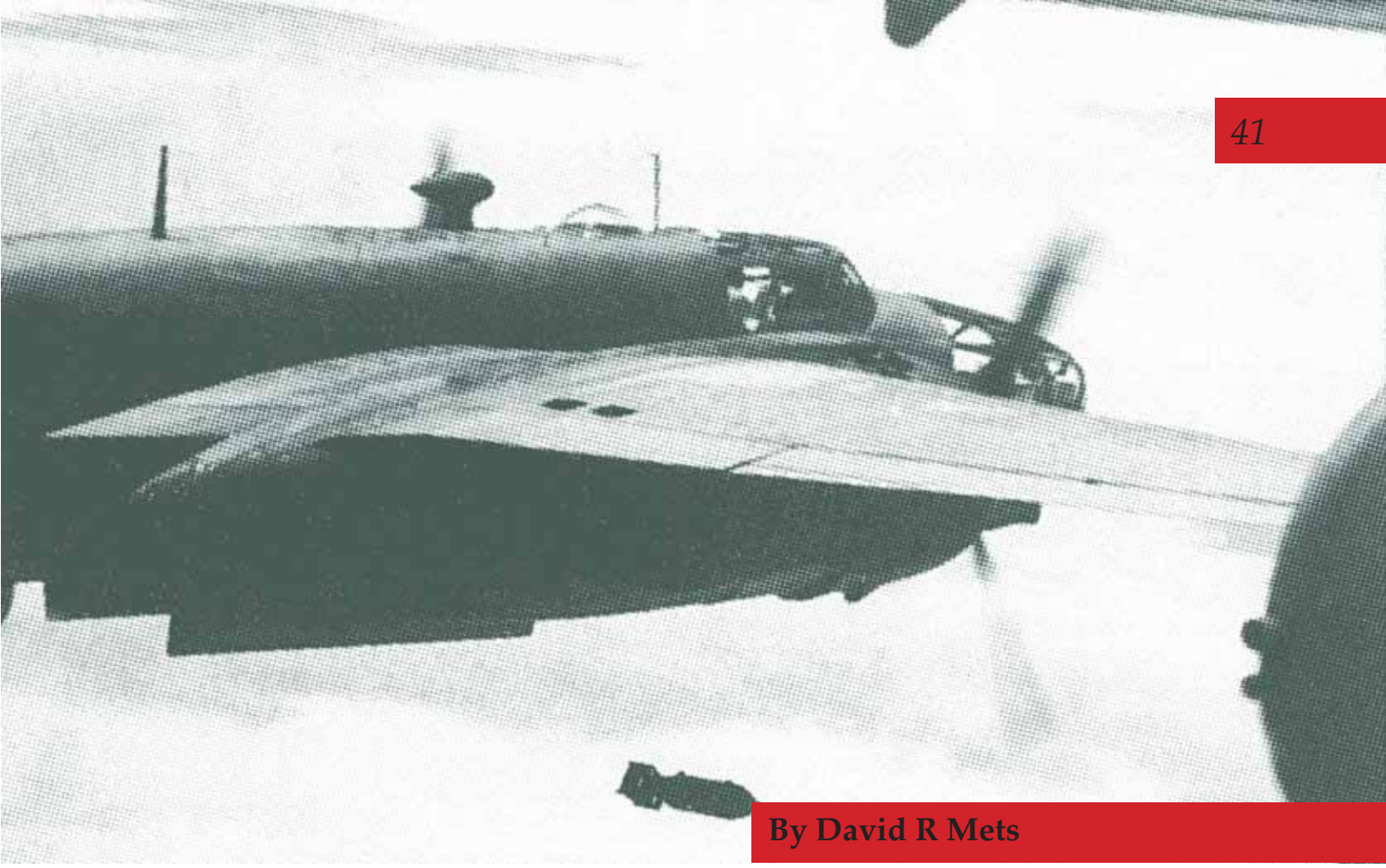


A B-25 drops bombs on Rabaul. It was the 5th Air Force's objective to capture Rabaul allowing the Allies to proceed on to the conquest of the Philippines

The Battle of the Bismarck Sea

1-3 March 1943
A proving ground for air theory and doctrine?



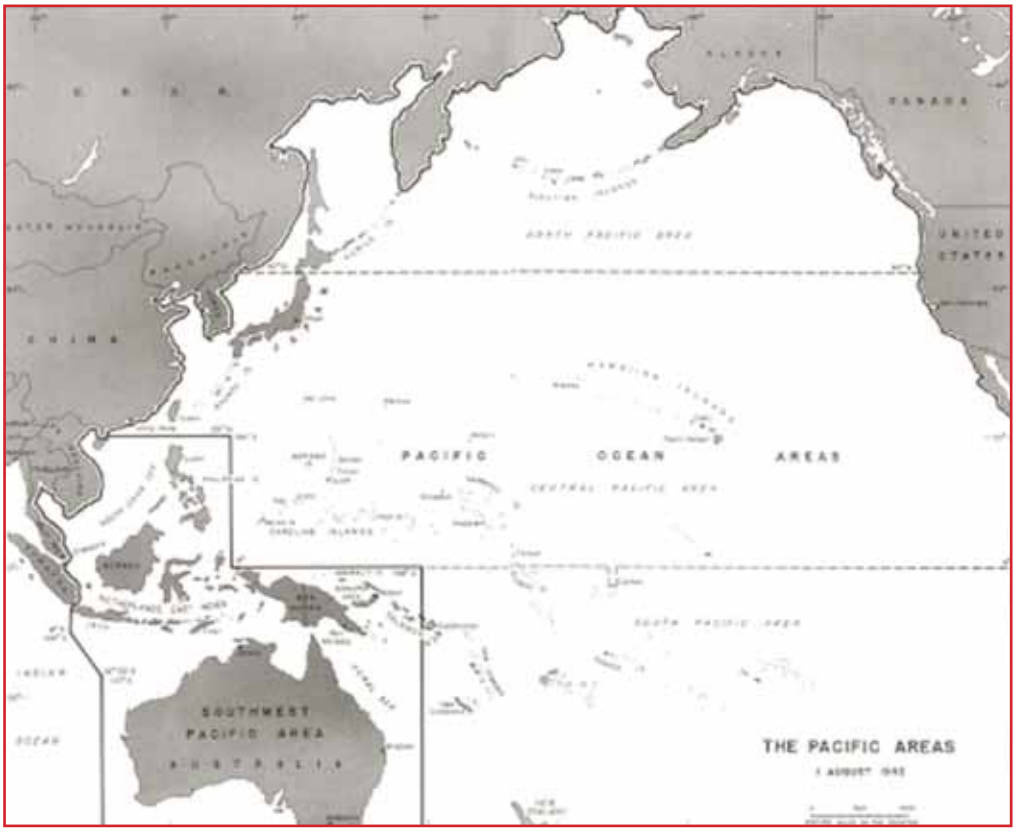
By David R Mets

We have just passed the 60th anniversary of the Battle of the Bismarck Sea. It occurs to me that it is worthwhile to revisit the experience to examine its implications for the history of the evolution of airpower theory and doctrine in the subsequent years. I will begin by examining the context of the Battle: its environment, climate and the forces arrayed on both sides. Then we shall turn to a summary of the strategies being pursued on both sides. We will follow that with a brief description of the way that the Battle unfolded and the results. We will then conclude with speculations on the ways that the experience affected, or failed to affect, the articulation of post-war air theory and doctrine. Perhaps the case study will also suggest some areas in which the traditional view is not completely accurate and some of the implications for the current doctrine of the Expeditionary Air Force.[1]

The context

In the spring of 1942, the military fortunes of the United States and Australia were at their lowest ebb ever. The Japanese rampage had conquered a huge physical arena containing millions of people and vast natural resources not theretofore found in the Japanese Empire. We shall see below, that the Japanese planned the establishment of a huge defensive perimeter and a stand that would wear down Allied counteroffensives. That was to cause the latter to settle for a negotiated peace that would substantially strengthen Japan as a great power.[2]

The Allies were in a bad way. The Germans were still rattling the gates of Moscow and threatening the Suez Canal. The US fleet was badly damaged, and General Douglas MacArthur had fled the Philippines under the orders of the President. He was installed in Australia, and for all he knew, the Japanese did not intend to stop at the north shore of that land.[3] The navies available to him were weak, combat weary, and largely devoid of airpower. The air doctrines of the Americans did not seem to fit the problem facing him, and the organization of the US military forces had a long way to go. The Australian Allies were also stressed. A substantial fraction of their best forces had been



deployed far away to assist the British in the war against the European Axis. The population and material resources of their land were clearly not up to fending off the Japanese alone.[4]

The background to the Japanese onslaught in 1941-42 is complex and extends well back into the 19th century and beyond. Japan had emerged from a kind of feudalism only at the end of that century and had been modernizing at a rapid pace in industry and technology. This was announced to the world in their great victory over the Russians culminating in the final defeat of the Tsarist Fleet at the Battle of the Straits of Tsushima, in May, 1905. The Japanese went on to make enormous gains in Asia and in the Pacific as a result of the First World War. They did so at minimal cost, and had enjoyed successful diplomacy at the Versailles Peace Conference and generally in the naval disarmament negotiations in the years that followed. All this had been possible because of the preoccupation of the great powers of Europe with each other.[5]

We saw that the Germans were on the outskirts of Moscow in December 1941. The British, though relieved of the threat of renewed air attack on the British Isles by the German move east, were nonetheless in a bad way. The submarine campaign threatened them and the Axis was menacing the Suez lifeline. The Nazi armies occupied Norway, Belgium, the Netherlands and France. Japanese resources were running short, in part because of US economic warfare, so they grasped at the Second World War as another opportunity.

The Japanese grand strategy

The Japanese undertook a massive campaign to make huge gains while the Europeans and Americans were tied down. They planned to grasp the oil-rich European colonies in the East Indies and the rubber and other resources of Southeast Asia. Then as we noted above they aimed to set up a defensive perimeter and wear the Allies down until a negotiated peace became possible. Things started to go wrong for them in the summer of 1942. The Japanese took Rabaul with its splendid harbor in January 1942, along with positions along the northeastern shore of New Guinea. They probably could have easily taken Port Moresby as well then, but neglected to do so. Then the first invasion attempt of Port Moresby was turned back in May with the Battle of the Coral Sea, and the next month they lost four large aircraft carriers and many airplanes at Midway.[6]

For all the Allies knew they intended to invade Australia. At that point, the Allied objective was merely to hold off the Japanese until the job against Germany was completed.

The Japanese undertook a massive campaign to make huge gains while the Europeans and Americans were tied down. They planned to grasp the oil-rich European colonies in the East Indies and the rubber and other resources of Southeast Asia

The geography and climate of the theater

The geography of the region made that part of World War II quite different from the struggle in Europe. Though the area of the campaigns in New Guinea and the Solomons is in an oceanic environment characterized by huge distances, there are many islands. Those in the Solomons chain stretch for six or seven hundred miles, and William Manchester describes New Guinea as the second largest island in the world being over a thousand miles from east to west. It has high mountains and many rivers running out of them to the sea on all sides. New Guinea is subject to frequent earthquakes and has many large swamps. Terrain in Solomons is also mountainous, and they are also subject to volcanoes and earthquakes.[7]

The climate in the Pacific also made that part of the war much different than the ones in Europe and North Africa. Both the Solomons and New Guinea are hard by the equator and subject to heavy rainfall. The temperatures are exceedingly high and the weather humid. This leads to a multitude of tropical diseases and infections that make the maintenance of the health of troops a major challenge.[8] There is not much temperature variation through the year. The climate to the east in the Solomons is similar, with frequent typhoons. New Guinea was heavily wooded, and very little of it could be successfully farmed. The situation was similar in the Solomons. There were few roads and airfields. Clear areas for building air bases were scarce. Offshore coral reefs were many and often uncharted.[9]

5th Air Force and New Guinea natives, 1943

The people in the Southwest and South Pacific were also far different from Europeans. The natives of New Guinea were mostly Melanesian, Papuan, Negrito, Micronesian, and Polynesian. The vast majority of people in the Solomons were Melanesians. But there were also a few Caucasians in both areas almost all of whom were favorably disposed to the Allied cause. Especially in the case of the Guadalcanal Campaign, their coastwatching was to yield as much as an hour and a half warning of Japanese bomber raids for the air defenders. That was more than the radar of the day could provide. The coastwatcher service was vital what with the slow-climbing fighters available at Henderson field.[10]

The natural resources sought by the Japanese were in large part further to the west and in Southeast Asia. In New Guinea there were gold, copper, silver, natural gas, tropical timber, oil and seafood resources. Most people there nonetheless lived in a primitive, subsistence economy. Notwithstanding the New Guinea petroleum resources, the principal oil fields in the Southwest Pacific Area were to the west in the Netherlands East Indies (now Indonesia).

In large part, the Japanese grand strategy arose from their environment on the home islands and their limited natural resources and dense population. Partly because of those limitations, Japan had been the first among Asian nations to industrialize. The grand strategy was to take advantage of World War II to create a more balanced economy over a larger area. As explained by Ronald Spector, there had been some talk in Japan about a possible attack on the Soviets to expand the Japanese holdings on the Asian mainland, but because of the need for a dependable source of oil, the decision was to expand to the south and west. This was to be done largely at the expense of the holdings of the Allied European powers that were fully occupied by the War there.[11] The idea was that Japan would supply the leadership, technology and manufacturing; the other Asians would provide the raw materials and labor.[12]

The Japanese grand strategy and initial results

By mid-1942, the Japanese campaign strategy in the south was in large part governed by events of

The Japanese naval and air forces outnumbered the combination of Australian and American forces and were better trained and experienced

the preceding six months. Having been checked in its drive to the east by the Battle of Midway, Japan decided it was time to go over to the defensive and to consolidate its gains while the War was being fought out in Europe. However, the exception to a general defensive was to be in the south. There, in the summer of 1942, the Japanese sought to continue the offensive to take positions at the eastern end of the Solomons and at Port Moresby. The ultimate desire was to threaten the line of communications from the US to Australia and thus to hamper the generation of a counter-offensive as well as to complete a defensive perimeter for Japanese bases in the South Pacific.[13]

Forces

Before the war, the Japanese military forces were by far the most potent in the region. But, in 1941 the naval forces certainly were not capable of standing up against those of the Allies except for the fact that the German submarine campaign was at its height and the Mediterranean sea line of communications was still blocked. Thus the US and British fleets could not be fully released against the Japanese. The Japanese naval and air forces outnumbered the combination of Australian and American forces and were better trained and experienced at that point. Their ground forces were also more numerous and were well seasoned though not so much so in jungle warfare.[14] By and large the navy and army dominated Japanese doctrine and the air forces in both cases existed to support the surface battle. Furthermore, the Allies underestimated the naval and air technologies of the Japanese.[15] But though the enemy was ahead in a few areas, across the board their military technologies were not yet up to western standards. Radar was shortly to be a huge advantage for the Allies both at sea and in the air, but it was not fully ready for the campaigns of 1942 and 1943. Land-based radar was not available at Port Moresby until September, 1942, and prior to that the Allies were largely dependent upon the 'poor man's radar' — coastwatchers.[16] In Japan, there was no separate air force, and Army-Navy rivalry was even more intense than in the West.[17] According to Henry Sakaida in *The Siege of Rabaul*, that rivalry extended to the Japanese forces involved in the Southwest Pacific:

"The Japanese Army had their priorities in New Guinea; their ground troops needed air support which the Navy could not or would not provide. There was very little cooperation between the Army and Navy at Rabaul or elsewhere. Thus Rabaul's Army air regiments achieved very little success, and by the end of August, 1943, almost all of the Army fighters had been transferred to Lae and Wewak. If Rabaul was the Graveyard of (naval) *Fighter Pilots, New Guinea was the Army's."*[18]

Allied grand strategy

The Allied declared grand strategy was to use all of the instruments of power to first achieve the defeat of the more dangerous enemy, Germany. Only after that was achieved was the Alliance to turn its full effort against Japan. But there were some Americans who chafed under this idea, especially in the Navy.[19]

No one had expected the Japanese advance to move as far to the south as rapidly as it did. There had not been much concern about Australia, but now a threat to her seemed real

The Americans largely dominated allied theater strategy making in the Southwest Pacific Area. The traditional plan had been to mount a naval campaign straight across the central Pacific capturing bases and building them up as we proceeded. Then, somewhere in the vicinity of the Philippines, a great sea battle would be fought. Having defeated the Japanese navy, the Americans were to then either blockade or bomb the enemy into submission or use some combination. This had been known as War Plan Orange before the War.[20]

But, largely unpredictable and fortuitous circumstances confused US Pacific strategy making. No one had expected the Japanese advance to move as far to the south as rapidly as it did. There had not been much concern about Australia, but now a threat to her seemed real and, also fortuitously, General Douglas MacArthur wound up there. Almost inevitably, he was given command and the mission to protect Australia and its lifeline from North America.[21] According to Stephen Taaffe and others, some US Navy leaders saw this as an Army intrusion into a naval theater,[22] and agreement on a single strategy did not prove feasible. Rather, MacArthur was to be permitted his return to the Philippines along the New Guinea coast to the west and thence northwest back to the Philippines. After that, the Japanese would somehow be defeated. Meanwhile, another strong man, Admiral Ernest King, also was to be permitted his preferred strategy, essentially a return to the War Plan Orange thrust across the central Pacific. But his strategy could not be implemented until the US carrier and amphibious fleets had been built up. In the desperate days of late 1942, for a time the only operational aircraft carrier left in the Pacific was the battle scarred *USS Enterprise.*

General George C Kenney

Having been frustrated in their effort to take Port Moresby at the Coral Sea, the Japanese Army decided to give it a shot with an overland march from the Buna area via the formidable Kokoda Trail. They made it most of the way but were frustrated by the fierce opposition of the Australians on the ground with assistance from the 5th Air Force through aerial resupply and air-to-ground attack. After the Coral Sea and the defeat of the Japanese at the Kokoda Trail in September, their advance had been checked and the lifeline to Australia was assured.[23] This required a modification of Allied strategy. As early as April 1942 the Combined Chiefs of Staff agreed that a limited offensive with two wings could be contemplated notwithstanding the Germany First Strategy.[24] The western prong would be under MacArthur and drive up the New Guinea coast to the westward and thence along New Britain to threaten the great Japanese base at Rabaul from the west. Similarly, the Navy would drive up the Solomons chain to threaten it from the east. The great naval fortress was to then fall to the combined thrusts.[25]

After the Battle of Midway, the forces of both the South Pacific including the Cactus Air Force and those of the Southwest Pacific containing 5th Air Force were directed in 'Phase II' to proceed westward to isolate and then capture Rabaul. The removal of that base would so undermine the Japanese position that it would permit the Allies to proceed on to later phases leading to the conquest of the Philippines or other objectives.

Allied Air Forces in the Southwest Pacific: Campaign strategy, doctrine and forces

Ideally, doctrine constitutes one input to air strategy. The 5th Air Force Commander, Lieutenant General George Kenney, had been an instructor at the Air Corps Tactical School (ACTS) in the

The Lightning pilots quickly learned to use those assets rather than engage in turning fights and the result was superiority

late 1920s, and had managed the air attack course there. He had also served on the operations staff of the GHQ AF. It is clear from his operations that he applied the concepts later found in Army Field Manual (FM) 100-20 to his campaigns. Those concepts suggested that the strategist: collocate the air commander with the ground commander, deem air superiority as the first mission, see interdiction as usually next, then ground support (which can come earlier in case of a ground emergency), then reconnaissance and finally tactical airlift.[26] Kenney was fully cognizant of the Industrial Web strategic bombing theory,[27] but had little opportunity or equipment to apply it in his theater.

On the eve of Kenney's assignment as an instructor at the Air Corps Tactical School in 1927, one of his predecessors, William C Sherman published a book, *Air Warfare*, that was derived from his World War One experiences and his own service at the School during its formative times. In the work he is quite clear on the primacy of air superiority.[28] He asserted that pursuit existed to control the air and all the other air missions were dependent upon that control. In his next chapter, he describes 'attack' aviation and asserts that direct support of the troops in contact or as a substitute for artillery are certainly legitimate functions, but ones to be deemed exceptional. He asserts that the assignment of the command of aviation to the lower units of the Army gives away its primary virtue: the ability to mass its effects anywhere in the battle zone. Thus, it should be controlled in a centralized way and usually be used at places that artillery cannot reach. He had written all these things in the early 1920s at the School and published them commercially in 1926. He had been close to General Billy Mitchell and Thomas DeWitt Milling from the First World War onward.

At the Army War College in 1921, Mitchell spoke of the primacy of the air superiority mission and of direct air attack on enemy land and sea forces. He was explicit in calling 'auxiliary' air work to enhance the operations of the surface forces "secondary."[29] In a 1923 lecture at the same school, Mitchell also dwelt upon the importance of centralized control of air forces by one person.[30] Thus, the ideas expressed were common ones inside the Air Service and Air Corps from 1918 forward, and George Kenney shared them.[31]

Bombing experience prior to the campaign against Rabaul

Earlier in the War, the US Army Air Forces level bombers at Midway got no hits on the Japanese ships and the USN torpedo aircraft were slaughtered there. Through 1942 the SWPA and South Pacific operations against convoys were decidedly disappointing. According to B-17 pilot James T Murphy, who was there:

"The 19th Bomb Group . . . had arrived in Australia from the Philippines in March 1942, the same month the Navy brought General MacArthur by PT boat. Their bombing continued to be from altitudes above 25,000 feet. The percentage of their hits on Japanese shipping, however, was less than one percent of all bombs dropped."[32]

One 38th Bomb Group wag, B-25 navigator Hollis Rushing, reminisced that he and his mates used to taunt the high-level B-24 crews by accusing them of helping the Japanese — by being unable to hit the Pacific Ocean and by killing so many fish with their bombs as to supply the enemy with food.[33] Kenney's 5th Air Force dive-bombers did little better and were quickly used up. On 29 July 1942, five out of a force of seven A-24s went down after they lost their escorts going across the Owen-Stanley Mountains and were caught by Zeroes. Only one got back to Port Moresby and the seventh was so badly shot up that it had to recover at Milne Bay. Nor did Kenney's level bombers get enough hits from medium altitudes.[34]

But during 1942, even though the European Theater had the first priority, 5th Air Force did grow. In the beginning of the year, its fighter forces were largely composed of ragged survivors of the northern campaigns, largely P-40s. They were joined by some P-39s along with the P-400 which was the export version of the same aircraft. The lattermost was especially useful in close air support (CAS) because of its 20 mm cannon and many machine guns. But neither was as capable as the Japanese Zeros, though their inferiority was somewhat diminished as the Allied pilots learned not to engage in dogfights with the Japanese.[35]

Royal Australian Air Force Douglas Boston (A-20) restoration. RAAF Museum phototgraph

Late in 1942, though, the older American and Australian fighters were joined by the twin-engine P-38 Lightning. That airplane was not favored in Europe as it was not quite competitive with the best German fighters, but its long range was a great asset out in the Pacific.[36] Also, it was not as maneuverable as the Zero, but it had a higher speed, heavier armament and a high rate-of-climb as well as superior diving speed. The Lightning pilots quickly learned to use those assets rather than engage in turning fights and the result was superiority. In fact, America's leading wartime ace, Richard Bong, won all his victories in the Southwest Pacific in P-38s (40 kills), starting in the winter of 1942-43.[37]

B-25 gunship and crew, New Guinea, 1943

General Kenney also served as the commander of Allied Air Forces, and the Australians made significant contributions to the outcome. They, too, were equipped with P-40s, along with A-20s and B-25s. But they also had a number of British designed Beauforts equipped for dropping torpedoes and Beaufighters armed with 20 mm cannons along with machine guns.[38]

All the way back to colonial times, a typical American response had been to seek technological solutions. In the SWPA, commanders deliberately and systematically sought technological and tactical innovations. As noted, Midway had also demonstrated that torpedo attack against well-defended ships could be highly dangerous. Later, an Army-Navy agreement had taken the USAAF out of the torpedo business in any event. Yet, we have seen that ships often could not be hit from altitude. The solution was to modify the B-25s and A-20s by removing the bombardier (and the lower turret in the case of the B-25) and installing as many machine guns as the space would allow all firing forward. This was rather a radical modification to be carried out under field conditions:

" . . . Knowing that replacements (for the guns of new Douglas A-20s that had arrived without their weapons) were not on the horizon, the mechanics of the 3d Bomb Group, under the supervision of Maj Paul 'Pappy' Gunn, went to work modifying their A-20s. To increase range, mechanics installed two 450-gallon

fuel tanks in the forward bomb bay. The resultant loss of bombload was offset by inserting four .50-caliber fixed, forward-firing machine guns in the nose in place of the bombardier station. This package installation was a masterpiece of design and was eventually adopted throughout the Pacific, European, and China-Burma-India theaters. When these guns were combined with the remaining four fixed, .30-caliber fuselage guns, the A-20A became a potent strafing weapon."[39]

Similar modifications were made to some of 5th Air Force's B-25s. Lieutenant Colonel Jarred Crabb provides one example. On taking his medium bomb group into combat he quickly found that it had very poor results from medium altitudes. He immediately prevailed upon General Kenney to make his unit one of those sent to Brisbane for modification into gunships. Crabb was sure that a 14-gun strafer would be much more effective than an unmodified bird.[40]

All the modifications and maintenance were done under trying conditions. Not only was the climate particularly deadly in generating extra maintenance requirements, but the European theater took priority for supplies and replacement aircraft. The distance from the US factories was another major factor — parts took 26 days to move from the West Coast to Australia. Moreover, once the aircraft arrived in theater, they required modifications just for openers. Most of the multi-engine aircraft were flown over, and they came in a winterized condition suitable to the fight in Europe — but unsuited for the Southwest Pacific. Thus, before they could go into combat, they had to be dewinterized by removing the de-icing boots and other cold-weather equipment. Too, unlike the semi-permanent maintenance facilities in Europe, those in the Southwest Pacific had to move forward as the fight progressed northwestward. Though it was only a little help at first, Australia did have an airline industry and a budding aircraft manufacturing capability that grew in 1942 to where some of the time delays involved in shipment from the US could be avoided. Early in 1943, all of the drop tanks needed for the 5th Air Force were being manufactured in Australia. Also of a little help was the deliberate salvage effort in the theater that was suffering substantial losses of aircraft. Teams were sent out into the jungles to recover the parts from airplane wrecks and came back with adventure stories all their own.[41]

38th Bomb Group B-25 skip-bombing off New Guinea. Note bomb about to hit the water

The heavy fire forward on B-25s and A-20s could suppress the anti-aircraft fire (AAA) coming from ships long enough for the medium bombers to make a low-level attack in relative safety. Though all of the crews involved in this were commanded by American pilots, many had been fleshed out with Australians who brought a wealth of flying experience to the work.[42] The tactical innovation was to use skip bombing instead of torpedoes in such attacks.[43] Although it was to be the medium bombers that would use that technique in the Battle of the Bismarck Sea, B-17 pilots also developed it. As Fortress pilot James T Murphy described it in a mission to Rabaul on October 2, 1942:

" . . . I then let down again; this time I broke out at 2,500 feet. Dawn was just breaking and I was fortunately flying east right into the sun . . . When Lombard and Hirsh, my bombardier and navigator both saw the huge transport about forty degrees off to our

The training was so realistic that one B-25 was lost when its wing hit the mast of the wreck and two others received fragment damage from bombs that went off early

left, I dropped down and angled into the biggest ship I had ever seen. I had told Lombard to drop the four 1,000-pound bombs simultaneously when we reached the target. We knew we would have little time to get away at dawn. Everything around the harbor seemed to be firing at us. I had a good 20-second run, straight and level. The bombs went exactly as we hoped — one hit the ship directly, with the other three very close to it. Major fires broke out all over the ship. The results were fantastic. I had hit a 15,000-ton transport . . . On that mission, I received a number of holes in the wings and tail. At 2,000 feet, we just couldn't miss! Four ships were sunk that night. Extremely low-altitude bombing was dangerous, but it worked!"[44]

The South Pacific theater campaign

Meanwhile, on 7 August 1942, the Marines had landed far to the east at Tulagi and Guadalcanal in an effort to head off the establishment of a Japanese base there. The entire object of that campaign was to deny the Japanese an airfield they had started in Guadalcanal and to establish one on the same site for the Allies — which became Henderson Field. The Japanese air threat was still serious enough that the American carrier that was supporting the amphibious assault pulled out on D+2,[45] and the amphibious vessels themselves were withdrawn soon after — without having completed the unloading of the equipment and supplies belonging to the stranded Marines.

It came to be one of the bloodiest and most hard fought campaigns of the Pacific War, and the first couple of weeks were especially bad. The Marines were devoid of air cover, and it was only on the 20th of August when the first land-based air units arrived at Henderson Field. The Japanese had begun to build the field, but the Marines using captured Japanese hand tools to a large extent, completed it even while under enemy fire. From the beginning, there were airmen from the Marines, the Navy and the Army Air Forces all operating at Henderson. During the Guadalcanal part of the Solomons Campaign, USMC Brigadier General Roy S. Geiger led what came to be called The Cactus Air Force, but later Army Air Force and Navy officers assumed command at different times — and with little complaint from any quarter.[46] Some of his units had been supplied by AAF General Millard Harmon and others came from Admiral John S McCain and they all fell under the control of USMC General Alexander A. Vandegrift and did what had to be done with little or no controversy. All the aviation gasoline had to come in by 50 (55) gallon drums. The fighters were using 20,000 gallons a day, all of them wrestled ashore by hand by the combat troops and then pumped into the aircraft by hand. The AAF was staging about 15 B-17 missions per month through Guadalcanal that fall, and those missions had to be provided 20,000 drums of fuel by the same methods until docks and storage tanks had been built in December, 1942.[47] By the end of the year, the battle was pretty well won and Army troops were brought in to relieve the battered Marines.[48]

Technological solutions are often important factors, but seldom are sufficient in themselves. Time and again, training has also proven to be a decisive factor in air war. As the Guadalcanal Campaign wound down, MacArthur and Kenney quickly understood that the Japanese would be free to concentrate their forces in New Guinea — if they could move them there by water.[49]

Southwest Pacific area plans, preparations, and preliminary operations

Thus, once the above technical innovations had been conceived and tested, the 5th Air Force spent a considerable part of the fall training crews against the old German shipwreck *SS Purth* outside Port Moresby. Much of this done by the B-25 crews of the 90th Bomb Squadron without the bombardiers they had been used to. They soon found that they could get superior accuracy from merely flying at masthead height aiming directly at the ship instead of skipping the bomb. The training was so realistic that one B-25 was lost when its wing hit the mast of the wreck and two others received fragment damage from bombs that went off early. The B-25s attacked in pairs with one strafing and the other strafing and bombing. They used objects on the nose of their airplanes as references for aiming. The crews flew as fast as they could and maneuvered while inbound to throw off the aim of any gunners with enough courage to stand up to the strafing.[50] The final dress rehearsal was flown on 28 February 1943. General Kenney himself narrated that while the all-out coordinated attack would strike the convoy,

a vital part of the initial plan also aimed a classic offensive couterair attack:

" . . . The combined attack would be covered by all the P-38s we could put in the air. In the meantime, to cut down the Jap fighter cover as much as possible, we would attack Lae with all the shorter-ranged aircraft. I also told him (MacArthur) that I expected to have at least one full-scale dress rehearsal of the combined show run off during the next day or two . . .[51]

The purpose was to repress the Japanese fighters on the ground at their fields around Lae so that they could not interfere with the Allied assaults on the inbound Japanese reinforcements. The Japanese had planned a similar counter-air attack on the Port Moresby fields as the convoy was getting underway, but just could not generate the air forces for that.[52] The 5th Air Force commanders knew that large convoys would come, and they were determined that their own airmen would be ready for them.

Modern theories of military affairs argue that neither technological change nor doctrinal adjustment is often decisive without organizational adaptation as well. In the 5th Air Force case, Kenney remained in Australia coordinating with the ground commander and taking care of the administration. Kenney apparently had the confidence to trust his subordinates just as MacArthur seems to have left the air war largely in Kenney's hands.[53] Kenney in turn put the operations into the hands of the commander of the advanced echelon, Brigadier General Ennis C Whitehead.[54] Later they further organized air task forces assigned to specific operations and equipped them accordingly. One example was the Buna Air Task Force established to protect that base and the nearby Dobodura airfield. During its tenure, many of the 5th Air Force squadrons rotated in and out of Dobodura for the purpose.[55]

In fact, the experience of the Buna Air Task Force offers some fine precedents for the recent USAF switch from its long-standing forward deployed *modus operandi* to an expeditionary organization and process. The airfield preparation at Dobodura began even before Buna was completely subdued, and the Task Force was activated the day after the Battle of the Bismarck Sea was over. It was deployed over the mountains under the command of then-Colonel Frederick Smith and a microscopic staff. Within two days, they had a headquarters up and running complete with the necessary communications. The Task Force set up on the banks of the cold Samboga River for easy access to water for bathing, and with purification, for drinking. There was a handy grove of coconut trees to shelter the tents and the headquarters building. Significantly, the Buna Air Task Force mission was stated as: *" . . . (1) air superiority . . . (2) the enemy line of communications would be interdicted, (3) direct attack support for allied ground forces, and (4) airborne transportation and supply . . .*[56]

There was then and long after a need to move fields forward into undeveloped areas to get closer to the war so as to bring more enemy targets into range, to improve the timely response for ground support, and to facilitate higher sortie rates. But once across the high mountains, the effectiveness of radio communications was diminished. But even more important, the quality of the command and control was also reduced. Thus, Kenney and Whitehead thought it necessary to install a leader with the talent for good decisions nearer to scene of the action and yet not burden him with the administrative trivia that was certain to haunt the headquarters further back at Port Moresby and Brisbane.[57]

As noted, the Americans had been reading the Japanese codes for some time, and were quite aware that the enemy was giving up on Guadalcanal and concentrating on New Guinea. The Japanese had been repulsed in their attempts to take Port Moresby first at the Battle of the Coral Sea, and then by their frustration on the Kokoda Trail across the Owen-Stanley Mountains. Once that latter offensive was defeated, the Allies drove on up to the north coast and during early 1943 managed to dislodge the enemy from Buna.[58] They did all this with the heavy use of aerial re-supply and the rapid construction of forward air fields; however, MacArthur's battered divisions were in no shape for an early resumption of the ground offensive.[59]

A participant of the campaign, USAAF Colonel Frederick H Smith, explained that the Allies were

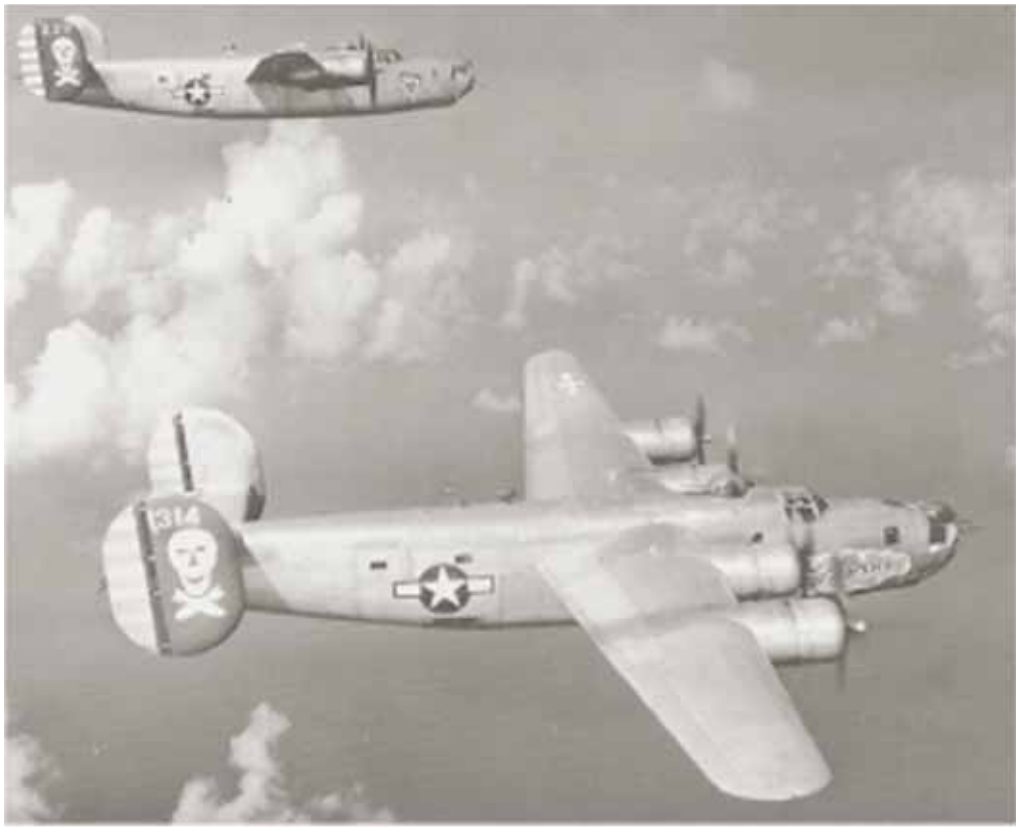
aware through reading the codes that the Japanese were intent on reinforcing their ground units in New Guinea.[60] On the 25 February, General Kenney read a decrypted message in General MacArthur's office. It showed him that the prospective convoy would triple Japanese strength at Lae were it to get through from Rabaul.[61] One convoy had indeed gotten through to Lae and Salamaua in January 1943 albeit with substantial losses. ULTRA authority Edward J Drea confirms that decryption revealed that difficulty had not dissuaded the Japanese and they were planning to send another major convoy in early March with most of their 51st Division embarked.

They were fully aware of the dangers from Allied airpower, but they could not land the troops outside Allied air range. The jungle terrain was simply too impassable to permit a substantial march overland of the entire division. The Japanese were therefore ready to accept the losses of some to get the rest through to Lae.[62] In addition to their other motivations, the enemy had the lure of Wau, only 30 miles inland from Lae — but with no roads thence. Not only were there gold mines at Wau, but more importantly the town had been serviced entirely by air since the 1920s and it had a good airfield that could be used to threaten Port Moresby, only 150 miles across the mountains. The Australians had been defending the place for some time, but they would not be able to hold out against the reinforcements the Japanese were trying to send in.[63]

Meanwhile, USAAF B-17s based in Australia had long been staging through Port Moresby to do reconnaissance and bombing at the harbor at Rabaul with some significant results. The Allied fields at Port Moresby and north of the formidable Owen Stanley Mountains were being developed at a very rapid pace. Until 1943, the heavy bombers (B-17s and B-24s) were based in Australia, but by February new facilities were being set up for them around Port Moresby. The bases north of the mountains were then to support the medium bombers and the fighter units. The latter fields had been taken by troops delivered by aircraft and supplied by air as well.[64] There were constant competing demands for materials and engineering labor, and their development were a priority and large time sink for General Whitehead. The waters north of New Guinea were full of coral reefs and largely uncharted so that logistics by sea were not feasible at first. Even the heavy construction equipment had to be brought over by air in airplanes not very well suited to the task.[65]

Battle of the Bismarck Sea: Day One, 28 February 1943: The Japanese deliberately planned to make their deployment by seaborne convoy during a very bad weather period so as to hide from Allied airpower beneath the clouds. (The US had not yet deployed many radar-equipped aircraft to the theater.) Too, their destination was still uncertain for they might have landed west of the Vitiaz Straits or turned through them toward Lae around the Huon Peninsula. Alternative routes were along the north or the south coasts of New Britain, either to be covered by fighter patrols out of bases on that Island.[66] Notwithstanding the decryption it was thus essential that long-range air reconnaissance spot and track the convoy at the earliest moment possible so as to confirm the route and determine the destination. In fact, Admiral Shofuku Kimura selected the northern option not only in the hopes of weather coverage, but also to keep his enemies concerned that he might turn West toward Wewak rather than east towards Lae.[67] The Allied commanders *wanted* the Japanese to know they were under aerial surveillance. That might reduce the chances that the enemy would suspect that his codes had been broken and change them at an awkward moment.[68]

Battle of the Bismarck Sea: Day Two: 1 March 1943: The Japanese convoy of 16 ships had departed Rabaul Harbor at midnight on the 28th. A 5th AF B-24 crew commanded by Lieutenant Walter Higgins got a glimpse of it about 1500 through the murky weather on the 1st of March, and it was clear that the route was along the north coast of New Britain and that the heading was in the direction of New Guinea.[69] The Japanese listened to Higgins' radio report back to Port Moresby in a way playing into Kenney's hands. But whether Kimura's convoy would turn left through the Vitiaz Straits or right along the north shore of New



B-24 Liberators arrive in New Guinea shortly before the Battle of the Bismarck Sea. They featured in the rest of the campaign to isolate Rabaul

Guinea remained uncertain. Attempts were made at bombing the convoy with B-17s on the 1st, but the results were limited.

Battle of the Bismarck Sea: Day Three: 2 March 1943: The weather continued to offer the enemy convoy some protection, and it was still out of range of 5th Air Force medium bombers and fighters. But it had been tracked and harassed with occasional bombs through the night by an Australian Catalina piloted by Flight Lieutenant Terry Duigan, and additional raids by B-17s were launched that day.[70] Unlike the 8th AF operations in Europe, they bombed from medium altitudes around 8,000 feet and without escort. They did so without losses notwithstanding Japanese fighter escort and did indeed get hits on three ships, one of which went to the bottom.[71] Partly because of the murky weather and partly because of the natural inaccuracies of crew reports in the heat of combat, the feedback to the commanders on the exact size of the convoy and the bombing results was uncertain and characterized by conflicting reports.

Battle of the Bismarck Sea: Day Four: 3 March 1943: During the wee hours of the fourth day, the Australians launched some torpedo-equipped Beauforts and though they found the convoy, their attacks did not add any damage. But after the dawn, the Allied prayers were answered. Not only had the Japanese made the desired left turn and sailed into the range of the medium bombers, but also the weather cleared — an unusual event for the region. Further, during the night the Japanese commander had circled about some to incur a delay so as to arrive at Lae at a time he deemed better — a bad mistake according Lex McAulay.[72] The convoy was then to be caught off shore rather than under the protection of the AAA guns of the Japanese installation on the beach. The local enemy airfields had been largely shut down. The Allied rehearsed operation was launched with little interference and mayhem was worked. About 120 airplanes were involved in the morning strike. Most of the strike aircraft were still based across the mountains. The rendezvous for the entire morning force was made at 0930 over Cape Ward

Bristol Beaufort, RAAF

Hunt, just a few miles northwest of Buna. They departed the Cape on a northeasterly heading and soon found the convoy. While around 35 fighters patrolled above protecting the strike aircraft below, Australian Beaufighters led the parade against the convoy firing their four 20-mm cannons and four machine guns as they approached the Japanese at extremely low altitudes. Their purpose was to clear the enemy decks of anti-aircraft gunners and to concentrate on the bridges of the ships to kill the officers and especially the captains. The Japanese made a mistake. Though we have seen that the Beauforts had a little earlier missed with all their torpedoes, they may nevertheless had done some good. Now, the Japanese skippers apparently thought they were under torpedo attack again and they turned bows on toward the Beaufighters. They wanted to present the narrowest possible targets to the expected torpedoes. That was exactly the wrong move.[73]

By presenting their bow instead of their beam to the Australian flyers, they enabled the Beaufighters to more easily rake the whole length of the ship. One Australian afterward commented that he was caught in a shower of drop tanks as did the inbound pilots of the 3d Attack Group. The American P-38 Lightnings had been sent in high to engage the Japanese escort fighters to prevent the latter from descending to attack the low-level bombers and Beaufighters. As the P-38s closed in on the Zeroes above, they had discarded their drop tanks to improve their own agility but unknowingly endangered their allies and countrymen flying below.

A 'lesson' learned by the Japanese at Guadalcanal had been that American bombers attacked from high altitudes — and it happened to be the wrong lesson here. They found the P-38s up there, but the bombers and Beaufighters had a relatively free ride far below.[74] Another Australian pilot remarked that when he looked outside he found that one of the American low-level bombers had arrived a tad early, and launched a 500 lb skip bomb that was zooming alongside practically in formation with his airplane![75] The B-17s were bombing from atop. The conventional B-25s were bombing from a slightly lower level. The 3d Group B-25 gunships and the A-20s were coming in low with their forward guns blazing.

Major Ed Larner led an eleven ship B-25 3d Group squadron, attacking almost simultaneously with the Beaufighters. About five miles out, he ordered a peel off, but as he approached his target, he found that he still had some of his mates on his wing. He came up on the radio and chased them off after their own targets wanting his own victim to himself. The Japanese were completely

The lifeboats and rafts were shot up and the blood in the water attracted numerous sharks to make the nightmare all the worse

surprised with the low altitude technique, and the American crews claimed that close to half of their bombs were hitting the ships. The low-level attack denied even the destroyers the time to evade the falling bombs. A few aircraft were troubled by faulty bomb racks that did not release their weapons as they crossed their targets. But they nonetheless sprayed the ships with their .50 calibers causing secondary explosions and deck fires — and then flew around for additional passes until their ammunition was exhausted. The Japanese fire was largely ineffective but it did shoot out the hydraulic system of one B-25, thus reducing it to using emergency procedures to get the landing gear and flaps down and to brake the aircraft after landing. The lieutenant in command took it back across the mountains, and crash landed at 7-mile air strip. Three of the crew members did survive though the top turret gunner did not make it.[76] Another B-25 crew was luckier when it returned with a dent in its right wing — made by colliding with a ship's mast. As Major Larner himself was leaving the scene, a Zero got on his tail. However, his tail gunner drove off the enemy with his twin .50 caliber guns. Larner and his crew would live to lead a second strike.[77]

Amidst all this, a B-17 piloted by First Lieutenant Woodrow W. Moore was shot down and seven of its crewmembers bailed out. The Zeros followed the parachutes down, and gunned the Americans to death as they descended — all this in the plain sight of many of the Allied airmen.[78] Many of the strike aircraft did not go back over the mountains to the home field. Instead, they landed at a couple of new servicing strips around Dobodura. There the 480th Service Squadron was in place to refuel and rearm the force — and did so in time for the second strike takeoff at 1300. Again rendezvousing above Cape Ward Hunt, they were soon again on the scene to finish the job. There were not many Japanese cargo ships left, so the remaining ammunition was expended against the survivors in the water.

Between the first attack and the return engagement the same afternoon, all of the surviving Japanese transports had been hit, and only one was still afloat. Four of the eight escorting destroyers had also been sent to the bottom.[79] But again, the reports coming back from the heat of battle were confused and exaggerated. As complete as the victory was, Generals MacArthur and Kenney both issued early statements on the damage that were soon shown to be overstated. That was unfortunate because the true results were certainly glorious enough to satisfy everyone.

Aftermath: 4 March and beyond: The last Japanese transport was sent to the bottom that night by a US Navy PT boat.[80] In the meantime, the whole afternoon of the 3d had been spent in gunning down the Japanese survivors in the water. Some felt that this was in reaction to the killing of the B-17 parachutists that day, but perhaps it would have happened anyhow. The lifeboats and rafts

B-25 bombers based in New Guinea send a Japanese Freighter to a watery grave, 1943

Admiral Yamamoto had sent many of his naval aviators who had survived Midway and the Coral Sea to the Solomons and New Guinea (without their carriers). Few of them ever came back

were shot up and the blood in the water attracted numerous sharks to make the nightmare all the worse.[81] The massacre was so bloody and complete that some Allied crewmembers later confessed to becoming nauseous during the work. Even the B-17 crews went as low as fifty feet to participate in the strafing of the survivors. But the Allied airmen felt they had to do it as the Allied ground troops were in a tough spot and every enemy that managed to get to shore would only make it more desperate.[82] In the end, only about 800 of the 6,000 or so people embarked ever made it to Lae. The other survivors were picked up by the remaining destroyers and were all returned to Rabaul leaving their compatriots in New Guinea in a bad way.

Battle effects and implications

The initial feedback to the commanders came from the air crew reports. Such data is almost always inaccurate, and usually exaggerated. This was all the more so in this case because of the weather, smoke, and many aircraft involved. The Third Bomb Group history of 1945 was clear in asserting that the convoy size was variously reported by its crews as 16, 22 or 23 ships — and that all had been annihilated.[83] Both General MacArthur and General Kenney quickly latched on to the most optimistic reports and issued them to the public. Some of them had placed the count of the ships in the convoy far above what it actually had been, and turned in highly inflated claims of the number sunk and the numbers of casualties put upon the enemy. This was unfortunate for the airmen because accurate feedback was soon had through ULTRA intelligence, and that yielded the true results.[84] Those were great enough to satisfy anybody, to be sure, but the Southwest Pacific Area leaders having made higher claims went into their defensive modes and refused to adjust them downwards. Partly because of interservice rivalry, those assertions were credibly disparaged and the luster of the achievement was unnecessarily diminished.

Dr Donald M Goldstein, an authority on the Battle of the Bismarck Sea, did a detailed analysis of the outcomes before some of the information about decryption had been declassified.[85] More recently Kenny biographer Thomas Griffith, writing after the existence of ULTRA had been declassified, generally concludes along similar lines as follows. The real Japanese losses amounted to an annihilation of all the transport ships in the convoy as well as half of the warships in its escort. Though about half of the people embarked were lost and only 800 made it to Lae, the claims had asserted more than twice as many Japanese were lost than was actually was the case, about 3,000 perished. Some claims rose as high as 22 ships sunk, but the actual total was 12. Soon after the War was over, the information already acquired by ULTRA was confirmed by interviewing the survivors. It was nonetheless a very lopsided victory. The Americans lost a total of five airplanes. One B-17 and three P-38s shot down and one B-25 lost to a landing accident. The wisdom of developing the bases like Dobodura north of the mountains was demonstrated in that several of the B-25s and P-38s damaged in combat, and other aircraft facing the deteriorating weather along the mountains were able to recover there safely. The Australian Air Force came through without any combat losses, but one Beaufighter was destroyed in an accident.[86]

The Japanese had already been checked in the Solomons by having been driven out of Guadalcanal. After that, they had the hope of concentrating the surviving forces in New Guinea and reversing the tide against MacArthur's wing of the drive toward Rabaul. But the destruction of their convoy bound for Lae marked the turning of the tide for good. Potentially, they would have been superior on the ground had they landed. But the experience was more evidence that air superiority was absolutely essential to success on the surface. Worse, the fight completed a process begun at Midway and Guadalcanal. Admiral Yamamoto had sent many of his naval aviators who had survived Midway and the Coral Sea to the Solomons and New Guinea (without their carriers). Few of them ever came back, and the experience level of the Japanese air forces was driven so low that it never had a chance to recover. Air superiority had been permanently yielded to the Allies.[87]

Though the battle was more akin to interdiction than to strategic bombing, it did have some implications for the latter role of airpower. The hard knocks for the strategic bombing campaign

The Battle of the Bismarck Sea was sure to stimulate ideas among air advocates that 'boots on the turf' may not always be necessary to success

in Europe were still in the future. The B-17s and B-24s operating in the South and Southwest Pacific did so with reasonable safety, and did it at a lower altitude than was being used in Europe. It was thus easier to get hits on precision targets and to return with acceptable losses than it was to be in the campaign against Germany. In hindsight, the limited ability to hit small, moving targets from high altitude did have implications for the theories of high-altitude, daylight, precision bombing. But the strategic bombing was just getting rolling out of England, and there was not enough cross-flow of information from the Pacific to yet stimulate serious doubts about the precision part of the theory. In any event, the German ground-based air defenses were so much more formidable than the Japanese to the bitter end that going to low altitudes over Germany was not a practical option until 1945 and even then it was highly dangerous. Thus, there was not yet much to call the basic industrial web theory into question.

Much of what has been written on the campaign in North Africa at the same time implies that the US Army Air Forces were ignorant of effective tactical air doctrine and that they had to be taught the basics by the RAF and the enemy Luftwaffe. The Battle of the Bismarck Sea came just a couple of weeks after the Battle of Kasserine Pass in North Africa. It occurred several months before the 'lessons' of the tactical air campaign in North Africa were codified in Field Manual 100-20. Yet, the campaign as practiced by Kenney and Whitehead certainly was conducted according to the precepts later expressed in 100-20.[88] The point is that those notions were not at all peculiar to Africa and therefore did not arise during World War II from the RAF or the Luftwaffe. Rather, they were ideas that had been well understood by the Air Service and Air Corps leadership during the interwar period — and none more so than General Kenney who had taught the tactical air part of the curriculum at the Air Corps Tactical School. Clearly, Kenney and most other folks thought that air superiority was paramount and acted accordingly. Back in the 1920s, both Giulio Douhet and General 'Billy' Mitchell thought that air superiority was paramount and a prerequisite for all other operations. They differed in method though, for Douhet thought that it might be best achieved by killing enemy airpower on the ground. Mitchell and most other Americans of the day felt that it would be best achieved by some combination of an air battle and an attack on enemy airpower assets on the ground. Major General Jarred Crabb who was a unit commander under Kenney during the New Guinea campaign, made it clear that his boss was at one with Mitchell on the notion. Offensive counterair operations against enemy airfields had been a major element in Kenney's campaign — though the leading American air-to-air ace of the entire war, Richard Bong, fought in 5th Air Force P-38s.[89]

The traditional next priority for airmen has been interdiction, and the battle of the Bismarck Sea itself and the favorable postwar judgment of the official Army history of the 5th Air Force's contribution in that regard during the Buna Campaign both support that notion. Finally, the next priority for airmen has usually been close air support, and that is the one area of air operations that the cited Army history found disappointing.[90] It is certainly true, though, that CAS is inherently more difficult (and less useful) in trackless jungle terrain than in more open areas. But the point remains that neither Kenney nor Whitehead could have learned their trade from the RAF or the Luftwaffe.[91]

Since the end of the Cold War, the USAF especially, has found it necessary to reduce its dependence on forward basing on a semi-permanent basis. Instead, it has implemented a doctrine of the Expeditionary Air Force. That requires a large part of the force to be based centrally in the continental US ready to deploy to whatever troubles arise in unpredictable locations.[92] The recollections of the aviators in the Southwest Pacific make relevant readings. Most of the practice deployments lately made by the Air Force have been made either to open Middle East locations or to the Korean Peninsula. The problems faced in jungle locations by people like Perry Dahl and Danforth Miller were quite different, and examining them would be a useful practice for the modern air-warrior. Were trouble to arise in a place like New Guinea again, the challenges of the deployment, basing, maintenance of machines and the health of the airmen, sustaining combat

sortie rates in primitive conditions all would be significantly different from those faced by our forces in the Persian Gulf today.[93]

It is probably fair to say that the experience in the Southwest Pacific showed that combined operations *could* go fairly smoothly as they were less difficult than they were with the British in North Africa. Certainly they were far less difficult than they were between the Germans and the Italians. A common language was certainly a facilitator, and the disparity in numbers and resources among the allies in the Southwest Pacific may have made it easier than it was with the British. Still, there was chagrin between nations, and both Kenney and MacArthur were a little rough with Australian national pride (as had been the British for a long time).[94]

Very bad relations between the US sea and land forces had characterized the interwar period. In the Southwest Pacific Area MacArthur had his difficulties in this regard as he could not get the degree of support he thought he had coming from the Navy: certainly he did not have the naval resources that Halsey was enjoying in the campaign up the Solomons.[95] But the distances between objective areas in New Guinea were less and could usually be covered by land-based fighters, which eased the problem some. Too, the Navy had taken some major losses in the Solomons, it did not have abundant resources left, and the situation was ever more perilous for naval forces the further west they traveled. When Admiral Nimitz felt he could not risk the remaining carriers in that region, he *did recommend* that MacArthur be provided with more land-based aircraft.[96]

Before the War, the Air Service's relationships with the Army ground forces were not as bad as with the Navy, but still were bitter. A major achievement by General Mason Patrick had been to extract a concession from the General Staff that sometimes it might become reasonable to run an independent air campaign before the ground forces had been mobilized and made contact.[97] A good case could be made that here was an example in both New Guinea and the Solomons of the air being the supported force and the land units being the supporting.[98] The Battle of the Bismarck Sea was sure to stimulate ideas among air advocates that 'boots on the turf' may not always be necessary to success.[99] But it was easy for the bomber airmen to forget that without ground force support (and airlift service) in the capture of bases north of the Owen-Stanley Mountains, the Battle would not have been possible. Too, the smashing victory was to some extent due also to good fortune and Japanese mistakes — like clearing weather at an opportune time, and perhaps the Japanese tarrying during the night of 2-3 March and then being caught in open water rather than in the vicinity of Lae with its ground defenses.

Certainly the Campaign against Rabaul is a prime candidate for illustrating the idea that information superiority can be a decisive factor if not the dominant one. According to Whitehead biographer Donald M Goldstein, the information that MacArthur, Kenney and Whitehead had via decryption was absolutely essential to the lopsided outcome in the Bismarck Sea and indeed that in turn had major strategic effects.[100] Aerial reconnaissance and coast watching had also been important, but the Allies could not have operated with the vigor and confidence they had without ULTRA. The current interest in Information Warfare has important precedents in the Battle of the Bismarck Sea — and long before that.

A large part of the prewar controversy had been related to the issue of command and control. Were air forces to be subordinate to the ground unit commanders at the corps level and even below, or was the command to be centralized at the theater level reporting only to the theater commander? The success of both the Solomons and New Guinea Campaigns plus the relative authority of the air commanders in both theaters suggests that the current AF doctrine that the air campaign should be centrally controlled at the theater level by an airman has important precedents in these campaigns, among others. Yet, neither Kenney nor the various air commanders in the Solomons had a legal status making them equal to and independent of the land or sea commanders which suggests that unity of effort may sometimes be possible without unity of command — through cooperation. Desperate circumstances seem to be

conducive to such unity of effort.[101]

The famous American naval theorist, Admiral Alfred Thayer Mahan had long ago preached that command of the sea, once achieved, would enable all other operations. This could be best achieved by a great sea battle between the battle lines of the contending navies. The Battles of both the Coral Sea and Midway had already suggested that such a battle may not be necessary after all — that aircraft might command the surface as well as the air. Both the Solomons and New Guinea Campaigns certainly further suggested that important results can be had without the great sea battle and also that where there are land bases available, command of the sea can be achieved by airpower.

In the end, the effect of personality can be vital. Forceful yet cooperative personalities can operate under austere conditions with inadequate forces, and flawed doctrine and yet prevail. Yet, others much better fixed with the implements of war can fail through personality quirks of many kinds. Kenney was a forceful, intelligent and industrious man. The way in which he stood up to MacArthur's Chief of Staff Major General Richard Sutherland said something about his leadership. Sutherland tried to micromanage the affairs of Fifth Air Force, but Kenney successfully prevented that. Yet he practiced what he preached and trusted Whitehead leaving the latter to make his own decisions. That might not have worked with many other leaders. Kenney and Whitehead both had a deserved reputation for innovation and it served them well in the Southwest Pacific. MacArthur, too, for all his ego, seemed capable of leaving enough authority to Kenney to permit an intelligent campaign to be run.[102] For all of Halsey's bullish reputation, he found it possible to get along with MacArthur when many others could not and the two cooperated with one another in an important way. In the end the fit was adequate to see the US and her allies through to a substantial victory at the Bismarck Sea that may fairly be seen as a turning point. It was, in fact, so recognized at the time. *Piercing the Fog*, the new and authoritative history of air intelligence in World War II, records that General Kenney had to take off for a Washington conference the day after the battle ended. The news preceded him to the effect that both Generals Henry Arnold and George Marshall himself met the air commander at the airfield—a clear recognition that the war in the Southwest Pacific was no longer a backwater. New supplies of aircraft were soon inbound to 5th Air Force's theater.[103]

The fate of the Japanese at Rabaul was sealed. Though there was much hard fighting ahead, the twin thrusts so isolated the fortress that it was unnecessary to capture it. Rather, it was neutralized and in effect became a prison camp for tens of thousands of Japanese who were left to waste away.

Notes:

[1] This paper is a derivative of my article on the same subject that appeared in the summer 2003 issue of Military History Quarterly. I wish to thank the editor, Colonel Rod Paschall, USA, (Ret.) for his kind permission to use the similar paper at the SMH Conference in advance of its publication. I also owe thanks to my colleagues, Colonel Thomas Griffith, Dr. Richard Andres, Professor Dennis Drew and Dr. Dan Mortensen who reviewed the manuscript and helped me improve it; its remaining faults are my own responsibility.

[2] John B. Lundstrom, The First South Pacific Campaign, (Annapolis, MD: Naval Institute, 1976), 5.

[3] Henry I. Shaw, First Offensive: The Marine Campaign for Guadalcanal, (Washington: Marine Corps Historical Center, 1992), 1; Lex McAulay, Battle of the Bismarck Sea, (NY: St Martin's, 1991), 3.

[4] Lundstrom, First South Pacific Campaign, 28; McAulay, Battle of the Bismarck Sea, 9-10.

[5] On the naval limitations see Ronald H. Spector, Eagle Against the Sun: The American War Against Japan, (NY: Vantage, 1985), 20-21; Spector, At War at Sea, (NY:Penguin, 2001), 1.

[6] US, Strategic Bombing Survey, Military Analysis Division, No. 71, Air Campaigns of the Pacific War, July, 1947, 14; Spector, At War at Sea, 193; Mark R. Peattie, Sunburst: The Rise of Japanese Naval air power, 1904-1941, (Annapolis, MD: Naval Institute, 2001), 174-75; McAulay, Battle of the Bismarck Sea, 5.

[7] William Manchester, American Caesar: Douglas MacArthur, 1880-1964, (NY: Dell, 1978), 339; Earl Hinz, Pacific Island Battlegrounds of World War II, (Honolulu, Hawaii: Bess Press, 1995), 44; Spector, At War At Sea, 219.

[8] Shaw, Guadalcanal, 32; Samuel Milner, U.S. Army in World War II, The War in the Pacific, Vol. 7, Victory in Papua (Washington: U.S. Army, 1955, 1989), 372; George C. Kenney, Dick Bong: Ace of Aces, (Washington: Zenger, 1960), 20.

[9] Samuel Eliot Morison, History of United States Naval Operations in World War II, Vol. IV, Breaking the Bismarcks

Barrier, 22 July 1942-1 May 1944, (Edison, NJ: Castle Books, 1950), 30-32; Shaw, Guadalcanal, 1.

[10] Shaw, Guadalcanal, 17; Peattie, Sunburst, 182; Lieutenant Colonel Danforth Miller is only one of many who comment on the great services of the coastwatchers and their native assistants, Interview, Danforth Miller with David MacIsaac, 29 January 1975, Air Force Academy, CO, USAF Historical Research Agency (herinafter HRA) Oral History Number K239.0512-923, 38.

[11] Ronald H. Spector, Eagle Against the Sun: The American War with Japan, (NY: Vantage, 1985), 42.

[12] Spector, Eagle Against the Sun, 35.

[13] Charles A. Willoughby and John Chamberlin, MacArthur, 1941-1951, (NY: McGraw-Hill, 1954), 109; Lundstrom, First South Pacific Campaign, 24-5, 40.

[14] Spector, Eagle Against the Sun, 38.

[15] Shaw, Guadalcanal, 21.

[16] Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 10.

[17] Lundstrom, First South Pacific Campaign, 6.

[18] Henry Sakaida, The Siege of Rabaul, (St Paul, Minnesota: Phalanx, 1996), 8.

[19] Thomas B. Buell, The Quiet Warrior: A Biography of Admiral Raymond A. Spruance, (Annapolis, MD: Naval Institute Press, 1974, 1987), 167-68.

[20] Edward S. Miller, War Plan Orange: The U.S. Strategy to Defeat Japan, 1897-1945, (Annapolis, MD: Naval Institute Press, 1991), entire work; Stephen R. Taaffe, MacArthur's Jungle War: The 1944 New Guinea Campaign, (Lawrence, KS: University Press of Kansas, 1998), 8.

[21]Salvatore A. Angelella, A Prototype JFACC: General George C. Kenney, unpublished masters thesis, School of Advanced Airpower Studies, 1994, 7; Lundstrom, First South Pacific Campaign, 58.

[22] Taaffe, MacArthur's Jungle War, 10, 17; Manchester, American Caesar, 381; MGEN Donald Wilson, interview by Hugh Ahmann, 10-11 December 1975, HRA Oral History No. K239.0512-878, Maxwell AFB, AL, 204.

[23] General Frederick H. Smith, Jr., interview by James C. Hasdorff, 6-8 June 1976, San Antonio, Texas, copy in Air Force Historical Research Agency, No. K239.0512-903, 51; Hinz, Pacific Battlegrounds, 45-6; McAulay, Battle of the Bismarck Sea, 6-7; Kenn C. Rust, Fifth Air Force Story . . . in World War II, (Temple City, CA: Historical Aviation Album, 1973), 5; Richard L. Watson and Kramer J. Rohfleisch, The Crisis in the South and Southwest Pacific, in Wesley Frank Craven and James Lea Cate, The US Army Air Forces in World War II, Vol. 4, The Pacific: Guadalcanal to Saipan, (new imprint, Washington: Office of Air Force History, 1983), 23.

[24] US, Strategic Bombing Survey, Military Analysis Division, The Thirteenth Air Force in the War Against Japan, No. 69, 30 September 1946, 1; Taaffe, MacArthur's Jungle War, 10.

[25] Thomas E. Griffith, Jr., MacArthur's Airman: General George C. Kenney and the Air War in the Southwest Pacific in World War II, (Ph.D Diss., University of North Carolina, 1996), 210; U.S. Strategic Bombing Survey, Military Analysis Division, Air Campaigns of the Pacific War, July, 1947, 14; Taaffe, MacArthur's Jungle War, 10, 12-3; Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 20.

[26] US, Strategic Bombing Survey, Military Analysis Division, Air Campaigns of the Pacific War, No. 71, July, 1947, 18, gives the priorities of missions in exactly that order; Angelella, Prototype JFACC, 15, 18; Rust, Fifth Air Force, 8, also cites them in that same priority; Joe Gray Taylor, "American Experience in the Southwest Pacific," in Benjamin Cooling, Case Studies in Close Air Support, (Washington: Office of Air Force History, 1990), 311.

[27] An analogy that likens an enemy state to a spider web. The idea is that if bombers can take out one or a few of the nodal points in the web, then the whole will collapse with much less effort and damage than would be required in a more general attack.

[28] William C. Sherman, Air Warfare, (reprint, Maxwell AFB, AL: Air University, 2002, 1926), [originally published in 1926 by Ronald Press, New York], 118-19.

[29] BGEN William Mitchell, Lecture, 1921, File No. 27-10, Army War College Curricular Files, Military History Institute, Carlisle Barracks, Pa, 1.

[30] Mitchell, Lecture, 20 September 1923, File No. 240-49, Army War College Curricular Files, Military History Institute, Carlisle Barracks, PA, 35, 52.

[31] Sherman, Air Warfare, 118-21.

[32] James T. Murphy, Skip Bombing: The True Story of Stealth Bombing Techniques used in 1942, (Troy, NY: Book Technology, nd), 22; Timothy K. Gann, Fifth Air Force Light and Medium Bomber Operations in 1942 and 1943, (Maxwell AFB, AL: Air University, 1993), 4; Major General Alexander A. Vandegrift, USMC, just before the Battle of the Bismarck Sea was a great fan of air power and the need for air superiority, but asserted most strongly that attacking moving ships from altitude was a futile exercise in the Guadalcanal Campaign just then completed, interview, USAAF, Intelligence Services, 3 February 1943, HRA File Number 142.052, 7-8.

[33] Hollis H. Rushing, interview with W.J. Shinneman, 5 July 1990, Homer, Louisiana, HRA Oral History Number K239.0512-2009, 22.

[34] McAulay, Battle of the Bismarck Sea, 20; Rust, Fifth Air Force, 5; Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula

Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 8, 84; Watson and Rohfleisch, Crisis, 25; Brigadier General William Hipps, who was an A-24 pilot in the Southwest Pacific refers to the same incident. He thought the Dauntless was a sturdy airplane, but not suited to USAAF work from undeveloped air bases in the Southwest Pacific — it came to New Guinea with hard carrier deck tires that sank into the mud and its bomb shackles would not accommodate the standard lugs on Army bombs! Interview with Daniel Mortensen et al., Bolling AFB, DC, 28 November 1984, HRA Oral History No. 239.0512-1732, 31; the one pilot who survived, Raymond H. Wilkins, later was awarded a posthumous Medal of Honor for a mission over Rabaul where he sank a destroyer and had his right wing shot off, U.S., AF, 5th Air Force, 3d Bomb Group, A Short History of the Third Bombardment Group, HRA File Number GP-3-HI, 1917-1945, 1.

[35] Air Commodore F.M. Bladin, RAAF, interview with Lt. Thurstin, 7 May 1945, HRA File Number 732.620-1, 3, in early 1942 instructed his RAAF P-40 pilots not to engage the Zero in a turning fight, but rather to merely make one high-speed diving pass and to leave the scene.

[36] Herman Wolk, George Kenney: The Great Innovator, Chapter 6, in John L. Frisbee, ed., Makers of the United States Air Force (Washington: Office of Air Force History, 1987), 135; Kenney, Bong, 22-3; Danforth Miller interview, 54-7, Miller flew both P-400s and P-38s out of Henderson Field.

[37] U.S.A.A.F. Resource Group/Heroes of the Air-Richard Ira "Dick" Bong, available on the internet at http:/www.warbirdsresourcegroup.org/URG/bong.html, accessed 15 March 2003; Kenney, Bong, 24; Colonel Perry J. Dahl, interview with Captain Phillip Meilinger et al., Air Force Academy, CO, HRA Oral History Number K239.0512-1222, Dahl repeatedly made the point on with words like " . . . if a Zero pilot ever saw you, you'd never shoot him down," 8.

[38] McAulay, Battle of the Bismarck Sea, 29-31.

[39] Gann, Fifth Air Force Medium Bombers, 7.

[40] Major General Jarred V. Crabb interviewed by Thomas Julian and Donald Goldstein, Air Force Academy, Co, 17 & 28 April 1970, HRA Oral History Number 239.0512-622, Maxwell AFB, AL, 3.

[41] Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, pp.44-56.

[42] This practice had been started before General Kenney became the commander. He found it as a source of confusion in the cockpit because of language differences and moved to end mixed crews though he kept some Australians on his staff, General George Kenney, interview by Colonel Marvin Stanley, no date, HRA Oral History Number K239-0512-747, 24.

[43] See Griffith, MacArthur's Airman," 211-17; Donald M. Goldstein, Ennis C. Whitehead, Aerospace Commander and Pioneer, (Ph.D Diss., Denver University, 1970), 103-05; US, Strategic Bombing Survey, The Fifth Air Force in the War Against Japan, 57; Willoughby, MacArthur, 110-11; the great success of these early innovations led to attempts to escalate to forward-firing 75 mm guns on B-25s for the Pacific fighting. However, that gun's size also required the removal of the copilot's position and required a longer stable flight lining up for the final approach to the target. Too, it was possible to fire only a few 75 mm rounds on this final approach and though it was effective on heavier targets it did not suppress the AAA as well as the .50 calibers had and made the aircraft more vulnerable to ground fire. I have flown the B-25 without a copilot but only on short flights and not in combat. The extra four eyes of the missing bombardier and copilot were doubtless important assets in low level flight in combat. General Kenney argued that the use of forward firing rockets on his B-25s and A-20s would be preferable to the 75 mm because they did not require the long, straight-in approach. Information on the 75 mm in Trip to S.W.P. H., Pacific, 1944, CHM Roberts Papers, Archives, US Army Military History Institute, Carlisle Barracks, PA; on the Australian crew members on U.S. airplanes, see McAulay, Battle of the Bismarck Sea, 26.

[44] Murphy, Skip Bombing, 42; actually, something like skip bombing was being tested at Eglin Field, Florida earlier in 1942, U.S., Hq USAAF, A-2, Impact, Vol. 1, No. 2, (May, 1943), 9.

[45] US, Strategic Bombing Survey, Military Analysis Division, Air Campaigns of the Pacific War, No. 71, July 1947, 19; Shaw, Guadalcanal, 7-10.

[46] James A. Winnefeld and Dana J. Johnson, Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991, (Annapolis, MD: Naval Institute, 1993), 23-38; Spector, At War At Sea, 205; Vandegrift interview, 1-8.

[47] Vandegrift interview, 7-8.

[48]Taaffe, MacArthur's Jungle War, 11,

[49]Griffith, MacArthur's Airman, 209; Douglas MacArthur, Reminiscences, (NY: McGraw-Hill, 1964), 171; Edward J. Drea, MacArthur's ULTRA: Codebreaking in the War Against Japan, 1942-1945, (Lawrence, KS: University Press of Kansas, 1992), 67.

[50] Goldstein, Ennis C. Whitehead, 127; McAulay, Batttle of the Bismarck Sea, 20; Watson, Huon Campaign, 84; 38th Bomb Group Navigator Hollis Rushing long after recollected that the aircraft was lost when a 100 pound practice bomb skipped up into its wing and caused it to crash into the ship, interview with W.J. Shinneman, Homer, Louisiana, 5 July 1990, HRA File Number 239.0512-2009, 19.

[51] General George C. Kenney, USAAF, General Kenney Reports, (reprint, Washington: Office of Air Force History, 1987), 199; Steve Birdsall, Flying Buccaneers: The Illustrated Story of Kenney's Fifth Air Force, (Garden City, NY: Doubleday, 1977),50; James, The Years of MacArthur, 294; McAulay, Battle of the Bismarck Sea, 22; Kenny-Stanley interview, 33.

[52] Drea, MacArthur's ULTRA, 64; Charles M. Westenhoff, Aggressive Vision, Air Chronicles, available on the internet at http://www.airpower.maxwell.af.mil.airchronicles/apj/apj89/westen.html, 7, accessed 13 March 2002.
[53] Michael E Fischer, Mission-Type Orders in Joint Air Operations, The Empowerment of Air Leadership, (Masters Thesis, School of Advanced Airpower Studies, 1995), 19; Salvatore A. Angelella, A Prototype JFACC: General George C. Kenney, unpublished masters thesis, School of Advanced Airpower Studies, 1994, 26-27.
[54] Smith interview, 53-54, at that point, Colonel Smith was Whitehead's Chief of Staff; Whitehead ultimately reached the rank of lieutenant general; BGEN Hugh J. Casey, interview, available on the internet at http://www.USACE.army.mil/inet/USACE-docs/eng-pamphlets/ep870-1-18/c-19.pdf, 191 accessed 13 March, 2002; Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 5.
[55] Angelella, Prototype JFACC, 23; Rust, Fifth Air Force, 9.
[56] US, USAAF, 5AF, 308th Bomb Wing, 5 March 1943-20 May 1944, HRA File Number WG-308HI (Bomb), p. 8.
[57] USAAF, 5th Air Force, 308th Bomb Wing, Heavy, 5 March 1943-20 May 1944, HRA File Number, WG-308HI (Bomb).
[58] US, Strategic Bombing Survey, Air Campaigns of the Pacific War, 18; Spector, At Sea At War, 193; Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 1.
[59] US, Strategic Bombing Survey, Military Analysis Division, The Fifth Air Force in the War Against Japan, July, 1947, 27; Huon Campaign, 5.
[60] Smith interview, 64.
[61] John F. Kreis, ed., Piercing the Fog: Intelligence and Army Air Forces Operations in World War II, (Washington: Air Force History and Museums Program, 1996), 265.
[62] Edward J. Drea, MacArthur's ULTRA: Codebreaking and the War Against Japan, 1942-1945, (Lawrence, KS: University Press of Kansas, 1992), 61, 64-6; Samuel Eliot Morison, History of United States Naval Operations in World War II, VI, Breaking the Bismarcks Barrier, (Boston, MA: Little Brown, 1950), 54-5; John Miller, Jr., The U.S. Army in World War II, The Pacific War, Vol. 8, Cartwheel: The Reduction of Rabaul, (Washington: US Army, 1959), 38-9; Huon Campaign, 73.
[63] Watson, Huon Campaign, 70, 76.
[64] D. Clayton James, The Years of MacArthur, II, 1941-1945, (Boston, MA: Little Brown, 1975), 290; Huon Campaign, 7.
[65] BGEN Hugh J. Casey, interview, available on the internet at http://www.USACE.army.mil/inet/USACE-docs/eng-pamphlets/ep870-1-18/c-19.pdf, 191 accessed 13 March, 2002; Rust, Fifth Air Force, 7.
[66] Goldstien, Ennis C. Whitehead, 126; James, Years of MacArthur, 292.
[67] McAulay, Battle of the Bismarck Sea, 33.
[68] Drea, MacArthur's ULTRA, 70.
[69] Manchester, American Caesar, 379; McAulay, Battle of the Bismarck Sea, 44-5; Watson, Huon Campaign, 87.
[70] Alan Stephens, The Australian Centenary History of Defence, Vol II, The Royal Australian Air Force, (South Melbourne, Australia: Oxford University, 2001), 162; Douglas Gillison, Royal Australian Air Force, (Adelaide, Australia: Griffin Press, 1962), 691; McAulay, Battle of the Bismarck Sea, 55-6.
[71] McAulay, Battle of the Bismarck Sea, 59.
[72] McAulay, Battle of the Bismarck Sea, 70.
[73] Stephens, Australian Air Force, 163; Gillison, Royal Australian Air Force, 693; Watson, Huon Campaign, 90; US, Air Force, 5th Air Force, 3d Bomb Group, History, 1919-1944, 39-40.
[74] Drea, MacArthur's ULTRA, 68; Morison, Breaking the Bismarcks Barrier, 59.
[75] Eric M. Bergerud, Fire in the Sky: The Air War in the South Pacific, (Boulder, CO: Westview, 2000), 591.
[76] 3d Bomb Group, History, 1919-1944, 40-42.
[77] 308th Bomb Wing, History, 1 March 1943-1 March 1944, HRA File Number WG-308-HI, 1 Mar 43-1 Mar 44; 3d Bomb Group, History, 1919-1944, 42-44.
[78] Gillison, Royal Australian Air Force, 693; Watson, Huon Campaign, 93.
[79] McAulay, Battle of the Bismarck Sea, 146, reports that one of the four destroyers was still floating as an abandoned derelict on the fourth, and it was finally sent to the bottom by a Japanese aircraft.
[80] Gillison, Royal Australian Air Force, 694.
[81] McAulay, Battle of the Bismarck Sea, 144 reported in 1991 that all of the shark reports came from the Allied flyers, and none from the Japanese survivors; Colonel Perry Dahl, a P-38 pilot, reported that later in the war the gunning down of parachutists was an accepted practice on both sides, Dahl interview, 29.
[82] Stephens, Australian Air Force, 164; James, The Years of MacArthur, 294; Murphy, Skip Bombing, 117; McAulay, Battle of the Bismarck Sea, 131.
[83] US, AF, 5th AF, 3d Bomb Group, History, Jul 1919-Mar 1944, HRA File Number: GP-3-HI (Bomb), 39.
[84] James, The Years of MacArthur, 298-300; Whitehead's chief of Staff, Colonel Frederick H. Smith, was married to one of Admiral Ernest King's daughters, and Smith remarks that the good Admiral was skeptical that MacArthur's airmen had put down the whole convoy — and that indeed they had not, Smith interview, 67; as late as 1964, MacArthur still wrote that there

had been " . . . from eight to twelve transports . . ." in the convoy and that all of them had been sunk, Macarthur, Reminiscences, 171; as early as 1950, Watson and Rohfleisch had the correct figures in, Crisis, 147-49; MacArthur's intelligence officer, also got the figures approximately right in a book published in 1954, Willoughby, MacArthur, 111.

[85] Goldstein, Ennis C. Whitehead, 133-36; Griffith, MacArthur's Airman, 236-41; it was publicly known even in the 1940s that some Japanese codes had been broken, US, Strategic Bombing Survey, Air Campaigns of the Pacific War, July, 1947, 62.

[86] Gillison, Royal Australian Air Force, 695; Wayne P. Rothgeb, New Guinea Skies: A Fighter Pilot's View of World War II, (Ames, Iowa: Iowa State University Press, 1992), 161.

[87] US, Strategic Bombing Survey, Air Campaigns of the Pacific War, 18; the Midway losses of Japanese naval pilots have been widely exaggerated, though the combination of that and the campaigns in the Solomons did attrit the pilot force and drive the experience level down as the American learning curve was rising rapidly and the result was air superiority, Mark R. Peattie, Sunburst: The Rise of Japanese Naval Airpower, 1904-1941, (Annapolis, MD: Naval Institute, 2001), 174-75, 184; Paul S. Dull, A Battle History of the Imperial Japanese Navy, (Annapolis, MD: Naval Institute, 1978), 268.

[88] Griffith shows that the exact priorities cited in the manual had indeed been followed by Kenny and 5th Air Force in their campaigns, MacArthur's Airman, 209; so does Joe Gray Taylor in American Experience in Southwest Pacific.

[89] Crabb-Julian interview, 39.

[90] Milner, Victory in Papua, 375-76.

[91] Kenney had been in France just prior to its fall, but he was teaching the main outlines of classical tactical air doctrine long before at the Air Corps Tactical School.

[92] Daniel R. Mortensen, The Air Expeditionary Force in Perspective, (Maxwell AFB, AL: College of Aerospace Doctrine, Research and Education, 2003), 3-4.

[93] Dahl interview; Danforth Miller interview — a whole different set of health hazards would have to be counteracted; instead of dust, the machinery would have to be better protected against corrosion, and the protection of air fields would be made more difficult by the obscured terrain — for openers.

[94] McAulay, Battle of the Bismarck Sea, 10 (McAulay himself being a retired Australian Army officer.)

[95] Wilson-Ahmann interview, 205.

[96] Richard L. Watson, Jr., The Fifth Air Force in the Huon Peninsula Campaign, January to October, 1943, Historical Studies, United States Army Air Forces, 1946, Copy in Air University Library, No. M-U, 27218, No. 113, c1, p. 22.

[97] Robert P. White, Mason Patrick and the Fight for Air Service Independence, (Washington: Smithsonian, 2001), 66.

[98] William Manchester, one of MacArthur's biographers, doesn't exactly say that, but comes close to it in a paragraph, American Caesar, 384; Tim Gann is explicit on the point, Fifth Air Force Medium Bombers, 30.

[99] Lex McAulay, himself a retired Australian soldier, said that Billy Mitchell had been vindicated and that the Battle had been won by airpower alone, Battle of the Bismarck Sea, 170.

[100] Goldstein, Ennis C. Whitehead, 124.

[101] Winnefeld and Johnson, Joint Air Operations, 23-38; Angelella, Prototype JFACC, 22.

[102] Harry A. Gailey, MacArthur Strikes Back: Decision at Buna, New Guinea, 1942-43, (Novato, CA: 2000)190.

[103] Kreis, Piercing the Fog, 267, before the Washington visit was over, Kenney was invited to visit President Roosevelt at the White House and the airman's picture appeared on the cover of Life magazine.