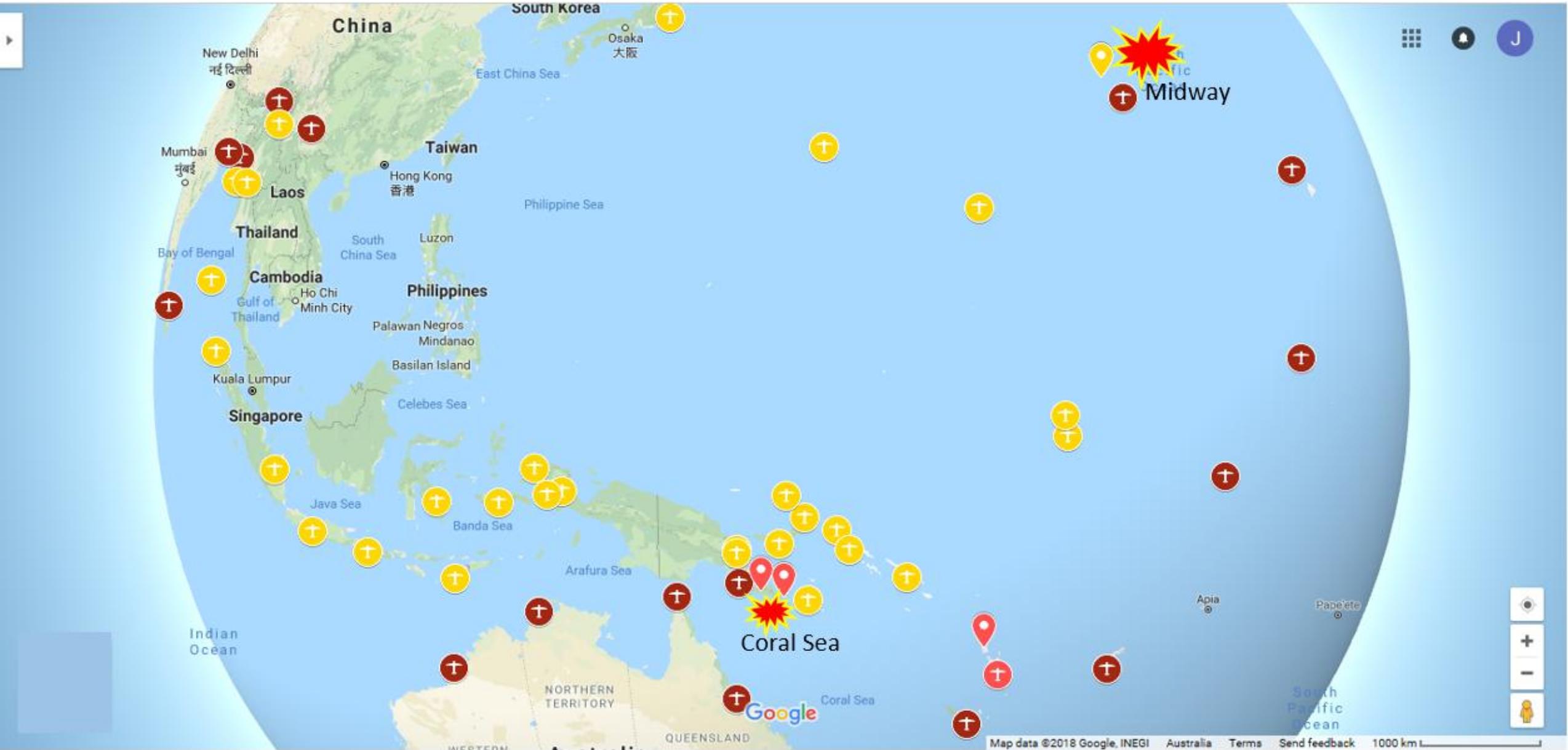


# The War in the Pacific 3 From Lae to Tokyo Bay

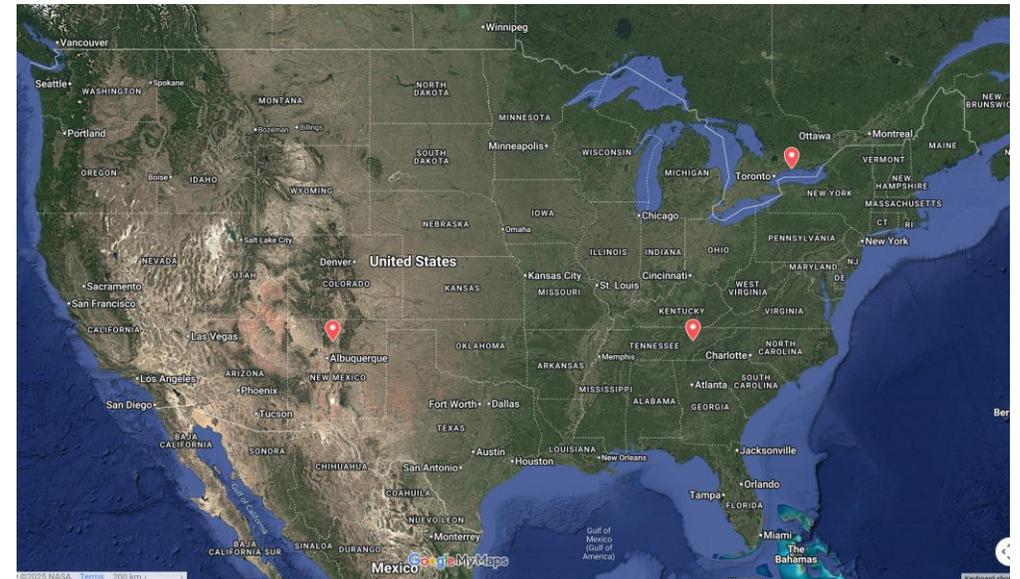
## 3 Background Marshalling Resources Mastering Skills





# November 1942 - Manhattan Project

- November - The first uranium oxide shipment leaves the Congolese port of Lobito (it will later change to Matadi because of better security). Only two shipments will ever be lost at sea. Aerodromes at Elizabethville and Leopoldville are expanded with US assistance. The OSS is employed to prevent ore smuggling to Nazi Germany.
- Photo: Uranium ore from the Shinkolobwe Mine in the Congo
- November 16: Groves and Oppenheimer visit Los Alamos, New Mexico and designate it as the location for Site Y.

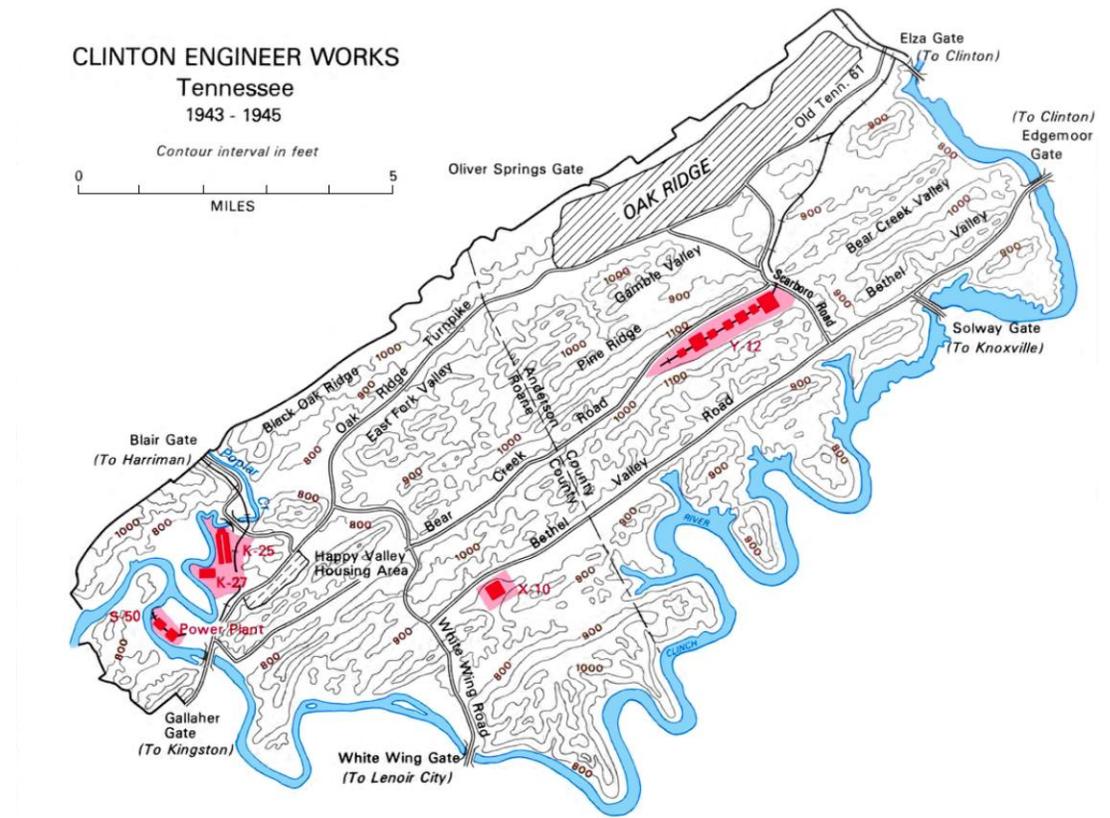


# Mid November 1942 – Manhattan Project

- About 1,000 families were affected by the acquisition of the Oak Ridge land, which came into effect on 7 October.
- Protests, legal appeals, and a 1943 Congressional inquiry were to no avail.
- By mid-November U.S. Marshals were posting notices to vacate on farmhouse doors, and construction contractors were moving in.
- Some families were given two weeks' notice to vacate farms that had been their homes for generations.
- The ultimate cost of the land acquisition, which was not completed until March 1945, was only about \$2.6 million—around \$47 an acre.

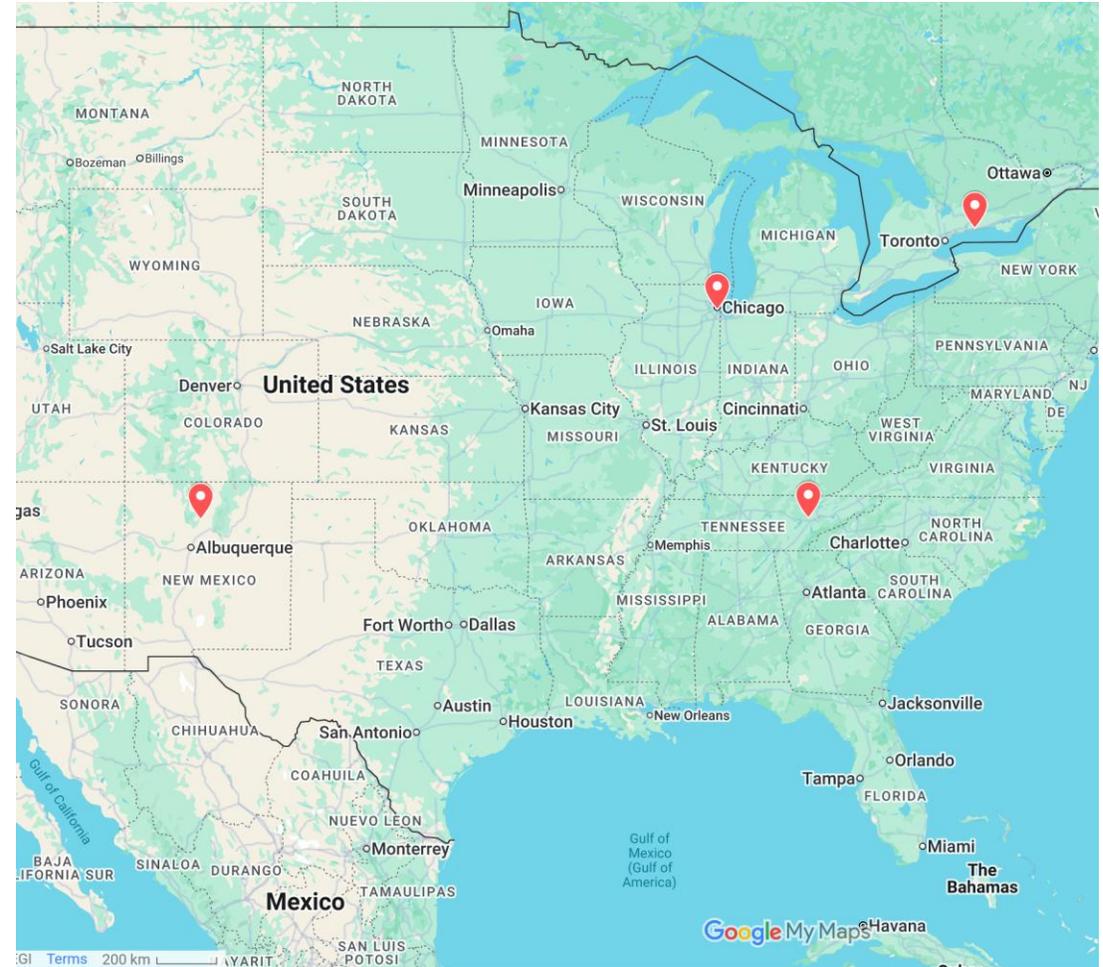
# Mid November 1942 – Manhattan Project

- Initially known as the Kingston Demolition Range, the site was officially renamed the Clinton Engineer Works (CEW) in early 1943.
- While Stone & Webster concentrated on the production facilities,
- the architectural and engineering firm Skidmore, Owings & Merrill developed a residential community for 13,000.
- The community was located on the slopes of Black Oak Ridge, from which the new town of Oak Ridge got its name.
- Oak Ridge hosted several uranium separation technologies. The Y-12 electromagnetic separation plant is in the upper right. The K-25 and K-27 gaseous diffusion plants are in the lower left, near the S-50 thermal diffusion plant. The X-10 was for plutonium production.



# 25 November 1942 – Manhattan Project

- The idea of locating Project Y at Oak Ridge was considered, but it was decided that it should be in a remote location.
- On Oppenheimer's recommendation, the search for a suitable site was narrowed to the vicinity of Albuquerque, New Mexico, where Oppenheimer owned a ranch.
- On 16 November 1942, Oppenheimer, Groves and others toured the vicinity of the Los Alamos Ranch School.
- Oppenheimer expressed a strong preference for the site, citing its natural beauty, which, it was hoped, would inspire those working on the project.
- The engineers were concerned about the poor access road, and whether the water supply would be adequate, but otherwise felt that it was ideal.
- Patterson approved the acquisition of the site on 25 November 1942, authorizing \$440,000 for the purchase of pre-calculated 54,000 acres, all but 8,900 acres of which were already owned by the Federal Government.



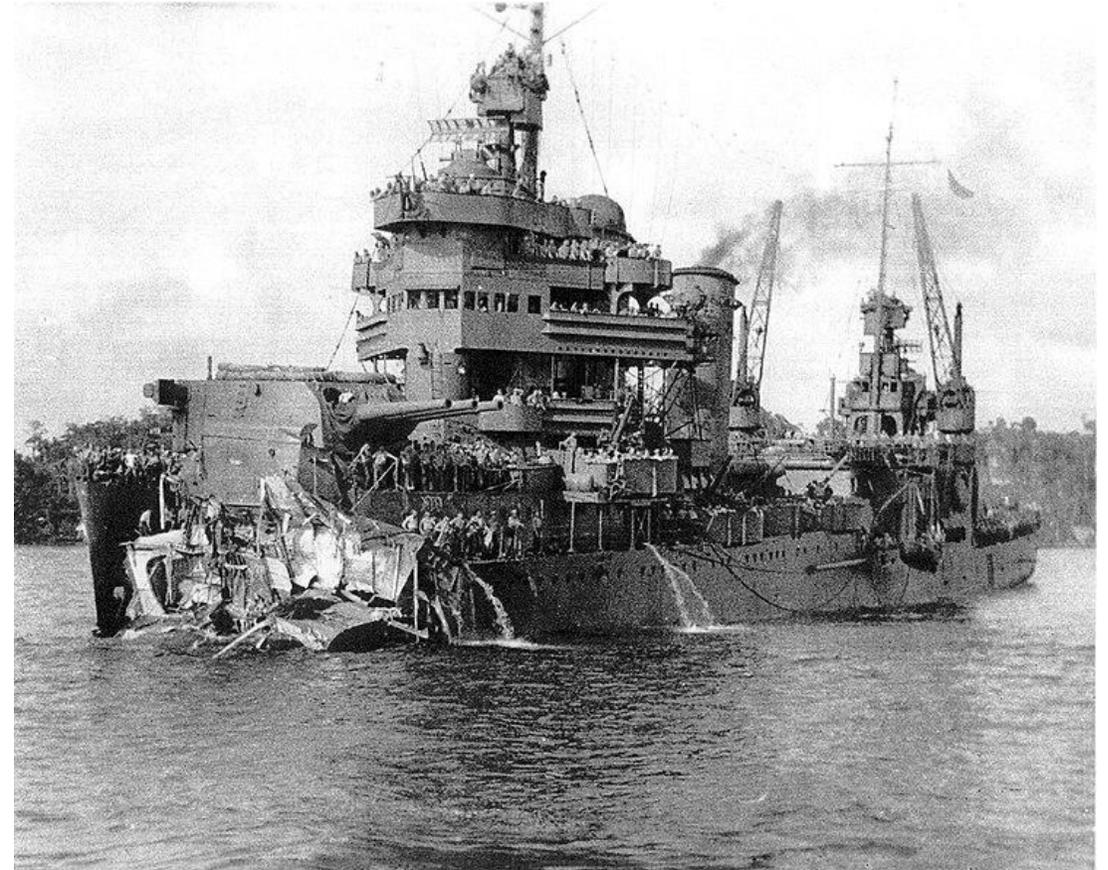
# 26 November 1942

- On Thanksgiving Day, 1942, Admiral Nimitz issued a directive (Tactical Bulletin 4TB-42) calling for the establishment of a "Combat Operations Center" on every warship.
- Explaining "Maximum combat efficiency by individual ships and task organizations can best be attained through full utilization of all available sources of combat intelligence." The COC would receive, assimilate, and evaluate information.
- What form this new structure would take, Nimitz and his staff did not say.



# 30 November 1942 - Sea

- At the Battle of Tassafaronga, between 8 Japanese destroyers and an American force of 5 cruisers and six destroyers off Guadalcanal, Admiral Wright ignored the radar sightings of his destroyers for 14 minutes before opening fire.
- All four US heavy cruisers were hit with torpedoes. One sinking the other three being very severely damaged.
- One Japanese destroyer was sunk.
- After construction of temporary bows from coconut logs, Minneapolis and New Orleans departed Tulagi for Espiritu Santo or Sydney on December 12.



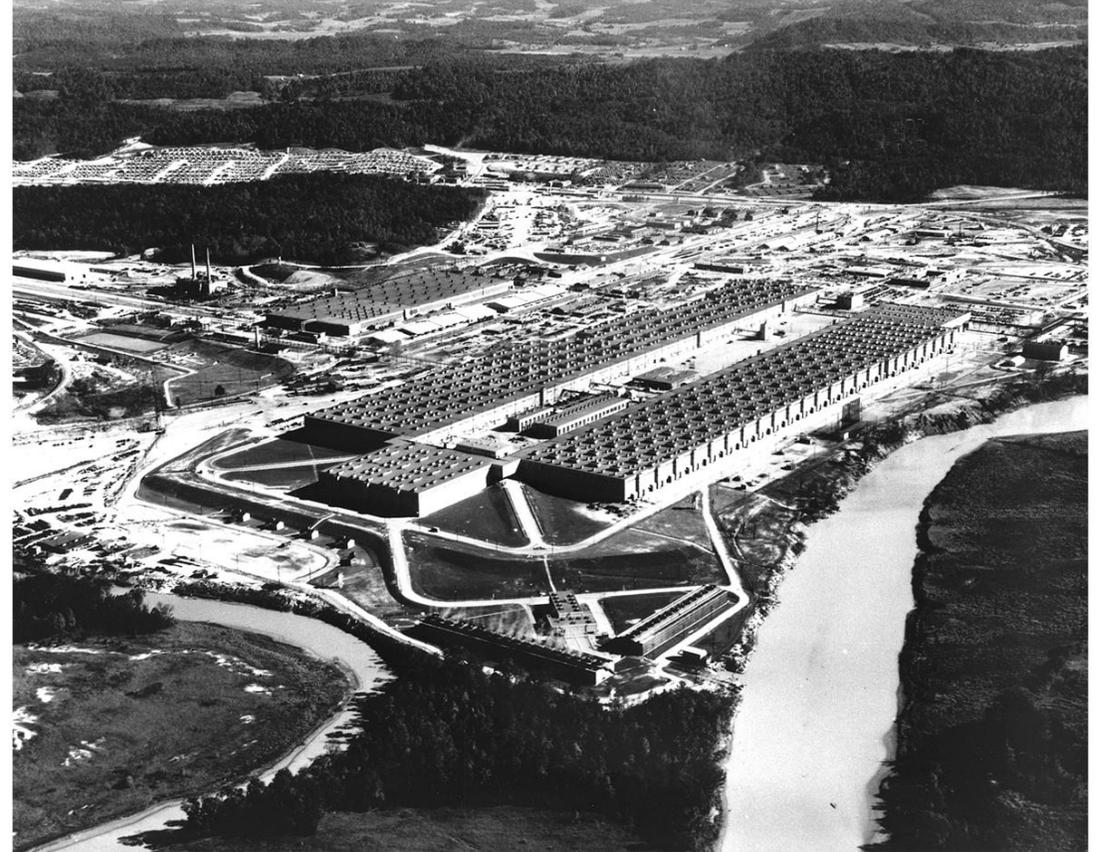
New Orleans near Tulagi the morning after the battle, showing everything missing forward of turret two

# November 1942 - Manhattan Project

- Jesse Beams had developed a centrifuge process for isotope separation in the 1930s but had encountered technical difficulties. In 1941 he began working with uranium hexafluoride, the only known gaseous compound of uranium, and was able to separate uranium-235.
- At Columbia, Karl P. Cohen produced a body of mathematical theory making it possible to design a centrifugal separation unit, which Westinghouse undertook to construct.
- Scaling this up to a production plant presented a formidable technical challenge.
- Urey and Cohen estimated that producing a kilogram of uranium-235 per day would require up to 50,000 centrifuges with 1-meter (3 ft 3 in) rotors. The prospect of keeping so many rotors operating continuously at high speed appeared daunting, and
- when Beams ran his experimental apparatus, he obtained only 60% of the predicted yield, indicating that more centrifuges were required.
- Beams, Urey and Cohen then began work on a series of improvements which promised to increase efficiency.
- However, frequent failures of motors, shafts and bearings at high speeds delayed work on the pilot plant.
- In November 1942 the Military Policy Committee abandoned the centrifuge process.

# November 1942 – Manhattan Project

- The most promising but also the most challenging method of isotope separation was gaseous diffusion.
- Graham's law states that the rate of effusion of a gas is inversely proportional to the square root of its molecular mass, so in a box containing a semi-permeable membrane and a mixture of two gases, the lighter molecules will pass out of the container more rapidly than the heavier molecules.
- The idea was that such boxes could be formed into a cascade of pumps and membranes, with each successive stage containing a slightly more enriched mixture.
- Research into the process was carried out at Columbia University by a group that included Harold Urey, Karl P. Cohen, and John R. Dunning.
- In November 1942 the Military Policy Committee approved the construction of a 600-stage gaseous diffusion plant.
- The design for K-25 called for a four-story half mile long U-shaped structure containing 54 contiguous buildings.



Oak Ridge K-25 gaseous diffusion plant

# November 1942 – Manhattan Project

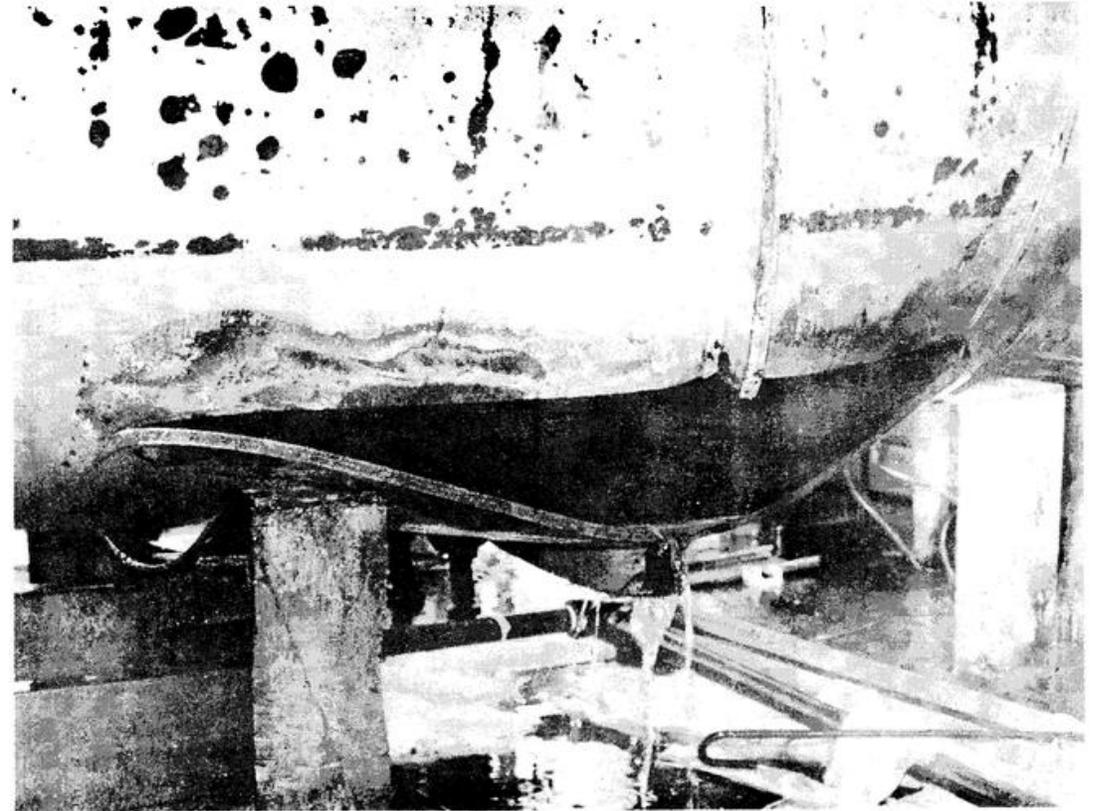
- On 14 December, M. W. Kellogg accepted an offer to construct the plant, which was codenamed K-25.
- The process faced formidable technical difficulties. The highly corrosive gas uranium hexafluoride had to be used as no substitute could be found, and the motors and pumps had to be vacuum tight and enclosed in inert gas.
- The biggest problem was the design of the barrier, which had to be strong, porous and resistant to corrosion.
- Edward Adler and Edward Norris created a mesh barrier from electroplated nickel. A six-stage pilot plant was built at Columbia to test the process, but the prototype proved to be too brittle.



K-25 under construction

# November 1942 – Manhattan Project

- Uranium hexafluoride ( $UF_6$ ) is a solid at normal temperature and pressure and a highly toxic, corrosive, and radioactive gaseous compound at 60 degrees C, primarily used in the nuclear industry to enrich uranium for fuel.
- $UF_6$  reacts violently with water and moisture, creating hydrofluoric acid (HF) and uranyl fluoride ( $UO_2F_2$ ), which are both highly corrosive. Inhalation can cause severe respiratory damage, and it is toxic if ingested or inhaled.
- $UF_6$  poses severe health risks, including chemical burns, kidney damage, and potential cancer risks from radiation



Ruptured 14-ton  $UF_6$  shipping cylinder. 1 fatality, dozens injured. ~29500 lb of material released. Sequoyah Fuels Corporation 1986.

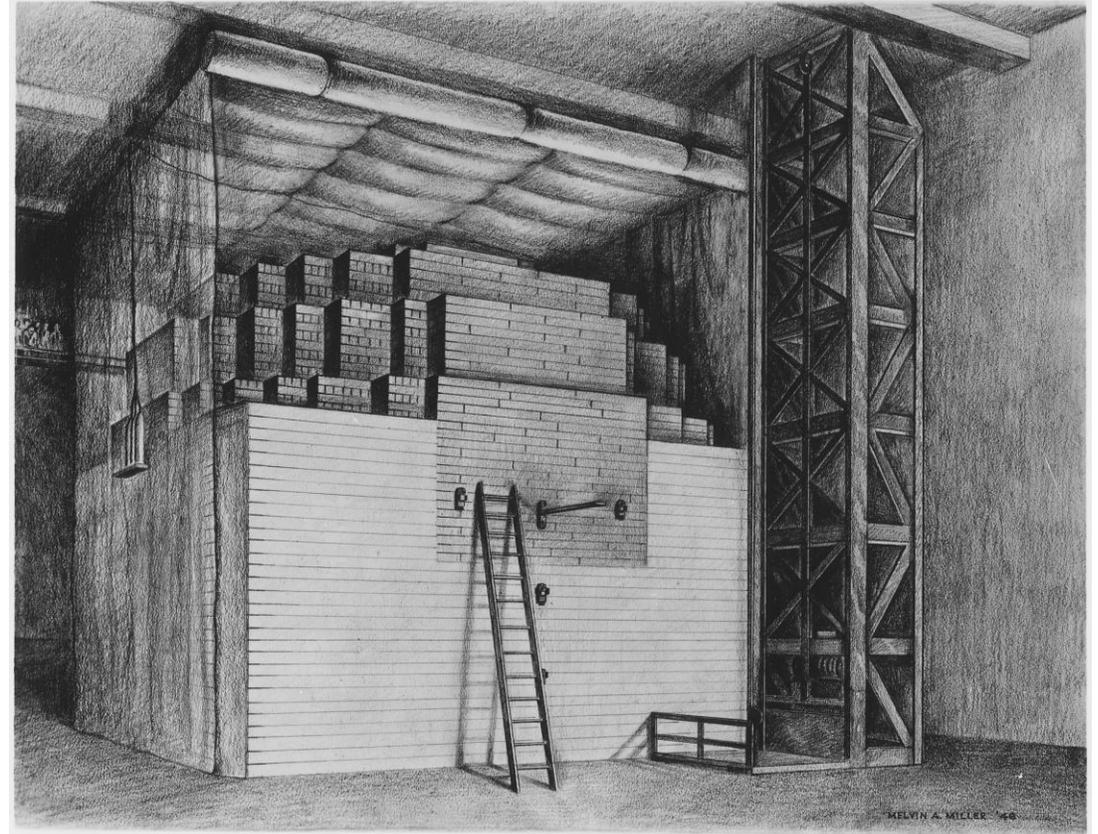
# 1 December 1942 - USA

- DEC. 1, 1942: MANDATORY GAS RATIONING, LOTS OF WHINING
- Nearly a year after the Japanese raid on Pearl Harbor the Americans get around to imposing nationwide gasoline rationing.
- Fuel shortage was not the problem. America had plenty of that. What it lacked was rubber. Both the Army and Navy were in desperate need of rubber for the war effort.
- The civilians at home would have to cut out nonessential driving to conserve on tire wear.
- Congress pushed for a delay, but FDR would have none of it. Backed by government procurement agencies and military leaders, the president ordered gasoline rationing to begin on Dec. 1 and to last "the duration."



# 2 December 1942 - Manhattan Project

- Chicago Pile-1, the first nuclear reactor goes critical at the University of Chicago under the leadership and design of Enrico Fermi (Nobel Physics 1938), achieving a self-sustaining reaction just one month after construction was started.
- The reactor contained 45,000 ultra-pure graphite blocks weighing 360 tons and was fueled by 5.4 tons of uranium metal and 45 tons of uranium oxide. It had no radiation shielding or cooling system as it operated at very low power – about one-half watt; nonetheless, the reactor's success meant that a chain reaction could be controlled and the nuclear reaction studied and put to use.



The first nuclear reactor was erected in the West Stands section of Stagg Field at the University of Chicago. The reactor consisted of uranium and uranium oxide lumps spaced in a cubic lattice embedded in graphite

# 7 December 1942 - Industry

- USS Bunker Hill, third of the Essex class fleet carriers was launched on 7<sup>th</sup> December 1942.
- Of the eleven ships of the class ordered in July and September 1940 after the collapse of France, one would be commissioned before the end of 1942, three in the first half of 1943 and another three in the second half.



Bunker Hill underway at sea in 1943

# 7 December 1942 - Industry

- USS Belleau Wood, third of the Independence class light carriers, had been launched on 6<sup>th</sup> December.
- With war looming, Roosevelt had noted that no new fleet aircraft carriers were expected to be completed before 1944. He proposed to convert some of the many cruisers then under construction to carriers.
- The General Board of the United States Navy replied in October 1941 that such a conversion showed too many compromises to be effective.
- President Roosevelt ordered another study. On 25 October 1941, the Navy's Bureau of Ships reported that aircraft carriers converted from cruiser hulls would be of lesser capability, but available much sooner.
- After the December 1941 attack on Pearl Harbor, the need for more carriers became urgent. Nine light cruisers were reordered as light carriers in the first half of 1942.
- Five of them would be commissioned in the first half of 1943 and four in the second half.



USS Belleau Wood

# 9 December 1942 - Guadalcanal

- On 9 December 1942, command of the troops ashore on Guadalcanal passed from General Vandegrift USMC to Major General Alexander M. Patch USA, commanding general of the Americal Division and senior Army officer present.
- On the same day the 1<sup>st</sup> Marine Division began to embark for Australia. The 5th Marines sailed that day.
- Vandegrift marked the occasion with a letter paying generous tribute to the soldiers, sailors and airmen who had worked, fought and died side by side with his marines. The Coastwatchers, referred to for security reasons as “our small band of devoted allies” were recognised for contributing “so vastly in proportion to their numbers”.



*SHOVING OFF as relieving troops arrive, weary men of the 1st Marine Division file on board landing craft and leave the Guadalcanal battle behind. (USMC 52978)*

# 17 December 1942 - Guadalcanal

- Major General Lawton Collins' 25<sup>th</sup> Division, bound from Hawaii to New Caledonia, was diverted directly to Guadalcanal where, its 35th Infantry Regiment landed on 17 December.
- That day the 132d Infantry of the Americal Division began an offensive against Mount Austen, which overlooks Henderson Field.



Major General Collins, commander of the 25th Division (right) and Major Davis, commanding the 3rd Battalion, 27th Infantry Regiment confer.

JIC No 385

30 Dec 42

LOSSES FROM ALL CAUSES AND NET CONSTRUCTION OF UNITED NATIONS AND NEUTRAL TANKERS AND OTHER TYPES OF CARGO (AND PASSENGER) VESSELS.

FIRST ELEVEN MONTHS OF 1942

	Gross Tonnage in 1,000's of Register Tons						
	Losses from All Causes			New Tonnage Completed		Net Gain (G) or Loss (L)	
	All Types	Tankers	Others	Tankers	Others	Tankers	Others
January	518	140	378	95	130	45 L	248 L
February	682	258	424	48	209	210 L	215 L
March	836	280	556	39	275	241 L	281 L
April	711	247	464	67	360	180 L	104 L
May	754	232	522	78	497	154 L	25 L
June	842	208	634	69	565	139 L	69 L
July	683	87	596	84	593	3 L	3 L
August	678	148	530	57	623	91 L	93 G
September	580	81	499	160	693	79 G	194 G
October	575	119	456	52	711	67 L	255 G
November	755	76	679	80	689	4 G	10 G
Totals	7,614	1,876	5,738	829	5,345	1,047 L	393 L

# 30 December 1942 – B29

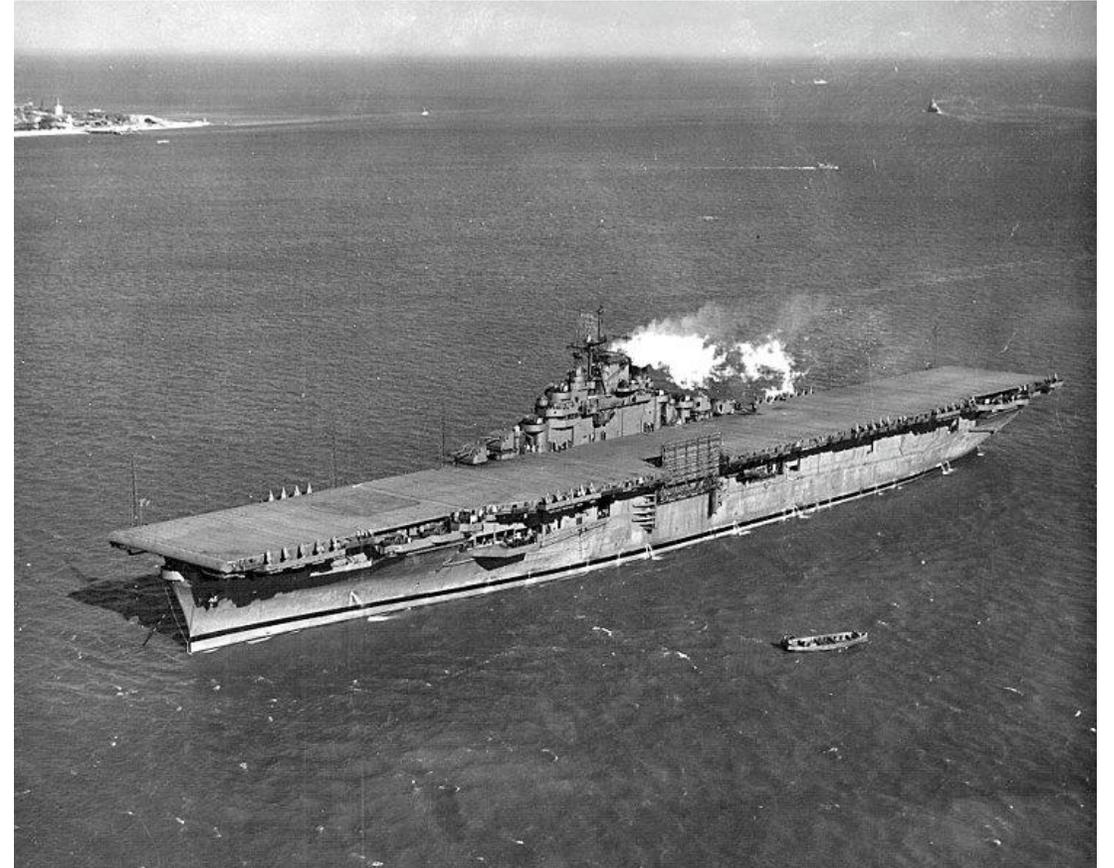
- The second B29 prototype was fitted with a Sperry defensive armament system using remote-controlled gun turrets sighted by periscopes.
- It first flew on 30 December 1942, although the flight was terminated due to a serious engine fire.



Tail armament, B-29

# 31 December 1942 – Sea

- USS *Essex* (CV9) was commissioned on 31 December 1942. It was the first new fleet carrier to join the fleet since *Wasp* in April 1940.



USS *Essex* (CV-9) at Hampton Roads, Virginia (USA), 1 February 1943.

33 knots, 100 aircraft, 12 5 inch dual purpose guns 8 40mm quad mounts and 46 single 20mm AA guns.

# 31 December 1942 – Industry

- In 1942, the first four American plants produced 2,241 tons of synthetic rubber, a tiny fraction of the 400,000 tonnes a year required to keep the war effort on the road.
- The Japanese had seized all the natural rubber production areas and stocks were expected to run out by June 1943.



The first U.S. government synthetic rubber plant to go into production, Akron, OH, April, 1942.

# 1942 - Manhattan Project

- The key raw material for the project was uranium, which was used as fuel for the reactors, as feed that was transformed into plutonium, and, in its enriched form, in the atomic bomb itself.
- There were four known major deposits of uranium in 1940: in Colorado, in northern Canada, in Joachimsthal in Czechoslovakia, and in the Belgian Congo. All but Joachimstal were in Allied hands.
- A 1942 survey determined that sufficient quantities of uranium were available to satisfy the project's requirements.



A sample of a high-quality uranium-bearing ore (Tobernite) from the Shinkolobwe mine in Belgian Congo

# 1942 - Manhattan Project

- Nichols negotiated with Eldorado Gold Mines for the purchase of ore from its refinery in Port Hope, Ontario. The Canadian government subsequently bought up the company's stock until it acquired a controlling interest.
- Groves also arranged for the purchase of US Vanadium Corporation's stockpile in Uravan, Colorado.

# 2 January 1943 - Guadalcanal

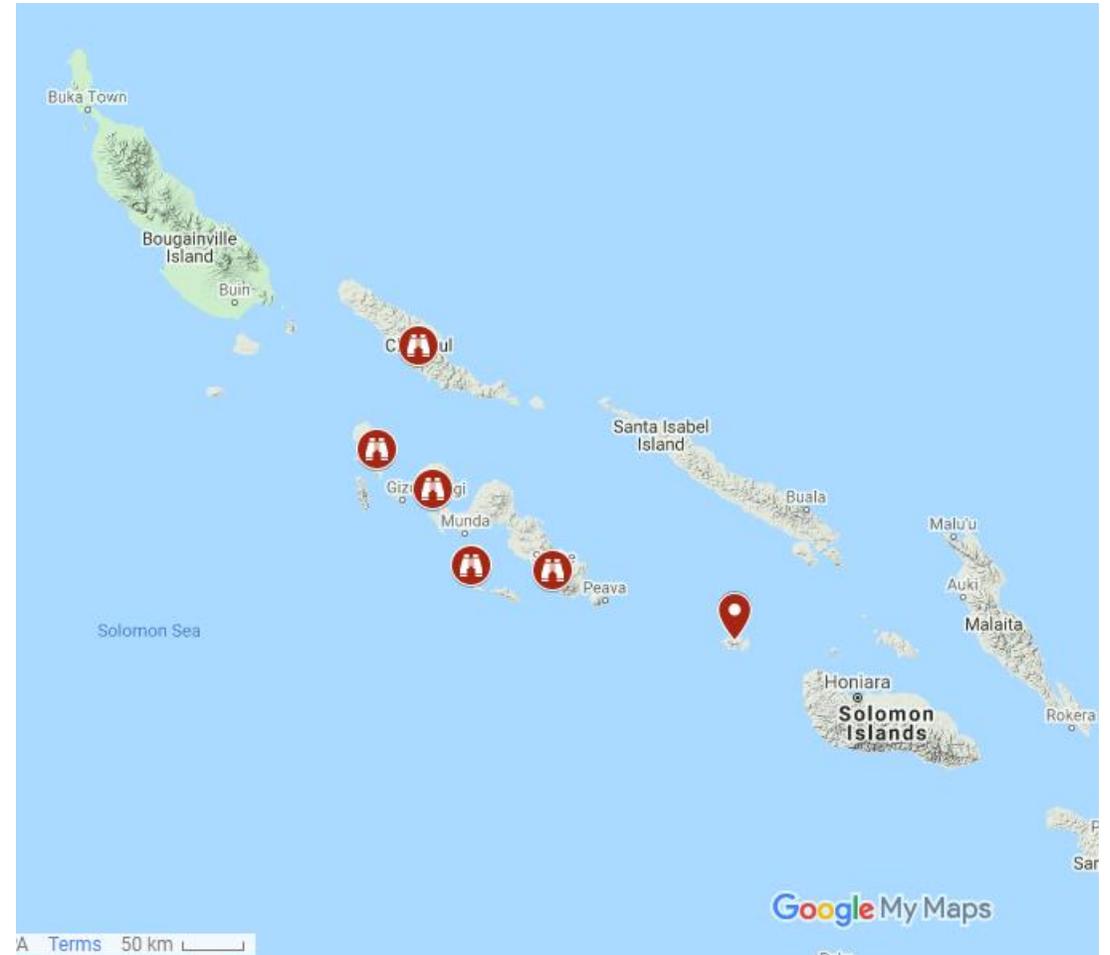
- The 25<sup>th</sup> Division's 27th Infantry landed on Guadalcanal on 1 January.
- With Guadalcanal clearly out of the shoestring category at last, General Harmon on 2 January designated the Guadalcanal-Tulagi command as XIV Corps.
- General Patch became corps commander and General Sebree, former Americal ADC, assumed command of that division.



Lt Gen Millard Harmon, commanding Army forces in the South Pacific area. Maj Gen Alexander Patch, left, XIV Corps; Maj Gen Nathan Twining, right, 13<sup>th</sup> Air Force.

# 4/5 January 1943 – Air Defence

- Coast watchers gave early warning but effective air defence requires fighter direction with radar and radio.
- As the Allies moved to retake Japanese held islands in the Solomons and New Guinea. Invasion forces were moving into waters without much maneuvering room, as well as closer to large Japanese bases.
- It was not a good idea to bring fleet carriers into such waters where they were within the enemy's aerial striking distance.
- The first solution was moving fighter direction to cruisers supporting landings, and providing CAP from island bases such as Guadalcanal, or from smaller escort carriers.



# 4/5 January 1943 – Air Defence

- One of the first cruiser Fighter Direction and land based air operations, the bombardment of Munda airfield on New Georgia Island on 4/5 January 1943, revealed a weakness in IFF.
- The cruiser Nashville was assigned fighter direction but failed to detect a Japanese raid that came in above and close behind its own combat air patrol that was showing IFF. It was found that an aircraft located less than five degrees in bearing on either side of a plane showing IFF, and at a similar range would appear on the radar scope as a friendly IFF response.



The U.S. Navy light cruiser USS Nashville (CL-43) off the Mare Island Naval Shipyard, California (USA), on 4 August 1943.

# 5 January 1943 - Air

- The Air War continued from Timor to Tulagi.
- On 5 January in a daylight mission 6 B17s and 6 B24s dropped forty 500-pound demolition bombs and 24 x 1,000-pound bombs on shipping at Rabaul from 8,500 feet.
- Five direct hits and numerous near misses were claimed.
- Photographs show one vessel listing and burning and two others on fire.
- Antiaircraft fire was heavy and fighter attack by apparently inexperienced pilots continuous.
- Two B-17's, including one piloted by Brig. Gen. Kenneth Walker, commanding general of the V Bomber Command, were shot down. Walker was posted KIA.



General George Kenney, commander 5th Air Force, and Brigadier General Kenneth Walker, commander V Bombing Command at Port Moresby, 1942

# 7 January 1943 - Guadalcanal

- By 7 January arrival of additional replacements had placed Guadalcanal's combined air, ground, and naval forces at about 50,000.
  - The 2d Marine Division now had a strength of 14,733;
  - the Americal Division, 16,000;
  - the 25th Division, 12,629.
- The Allies at last had the forces to plan attacks that would defeat the Japanese on the island.

# January 1942 – Air Defence

- Nimitz' "Combat Operations Center" attracted furious opposition from senior officers claiming that the bridge was and would always be the Combat Operations Center.
- King had to intervene, reinforcing the concept but conceding a change in name to "Combat Information Center".



# 9 January 1943 - Air

- On the 8<sup>th</sup> HBs, MBs, and LBs, with ftr cover, join RAAF airplanes in continued pounding of Japanese convoy as it unloads reinforcements at Lae. Enemy ftr cover and allied aircraft continue fierce air combat.
- Early on the following morning (9 January), the enemy ships withdrew to the east, leaving one beached transport behind.
- The Japanese had succeeded in their effort to reinforce Lae; Headquarters, Allied Land Forces estimated that better than 4,000 troops had reached shore. But at least two transports, and perhaps more, had been sunk, and American fighters had enjoyed a field day.
- The P-40's of the veteran 49th Group claimed twenty-eight enemy planes shot down in addition to their contribution as dive bombers with 300-pound bombs in attacks on the transports.
- Lt. Richard Bong of the 49th, flying a P-38, claimed three planes, while other P-38's accounted for at least thirteen of the enemy. The total claims ran well over fifty, against a loss of ten Allied planes.



The wrecked Japanese ship aground on a beach near Lae.

# 10 January 1943 - Sea

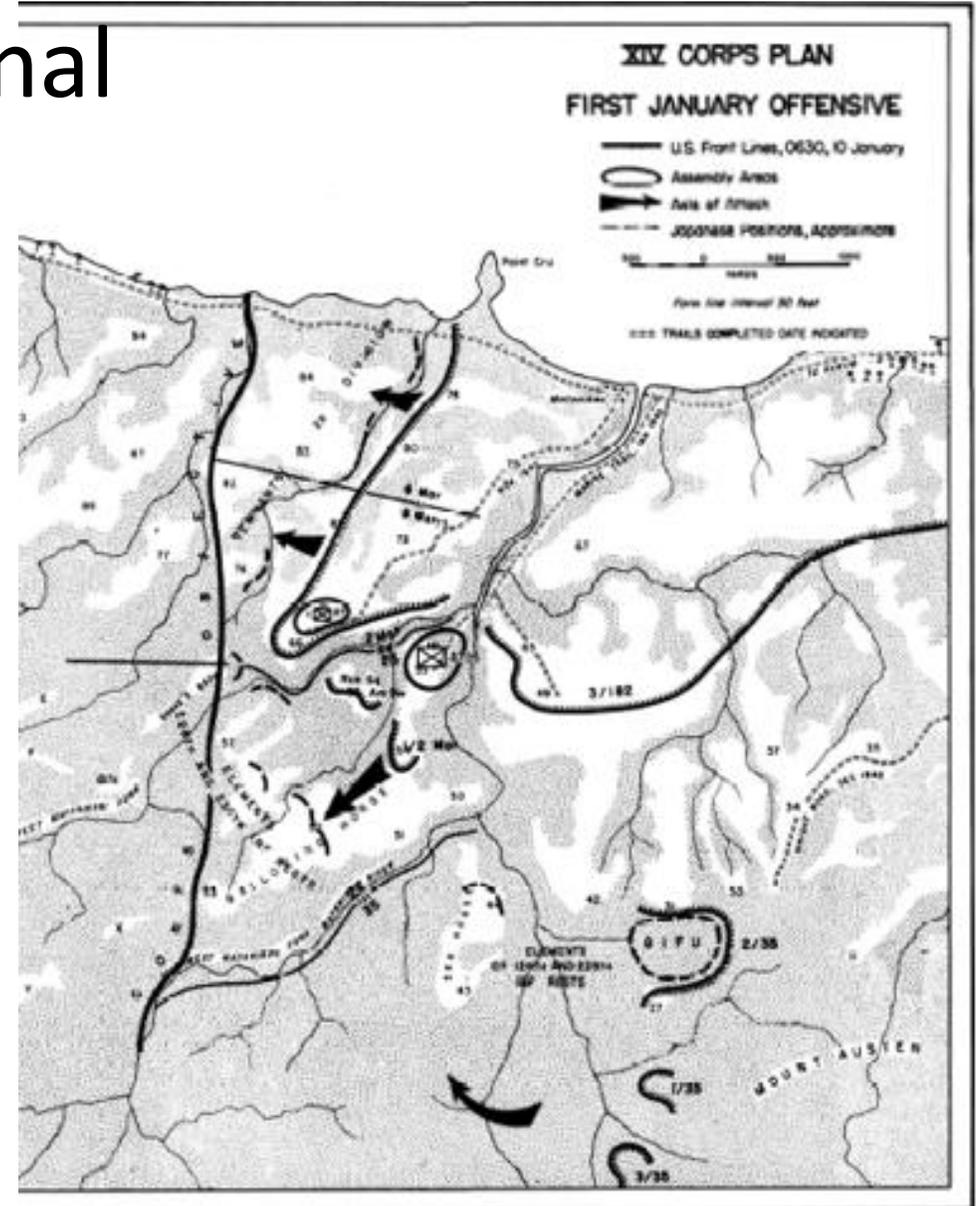
- On 10th January 1943 Comsouwespacfor, Admiral Carpenter, ordered that continuous Coral Sea patrol should cease.
- The disposition of the ships be modified
  - to maintain a task group of one cruiser and two destroyers at short notice at a Barrier Reef anchorage;
  - a similar group in the north-east area at longer notice to permit training and upkeep;
  - and a task group in Moreton Bay exercising, drilling, and conducting firing practices.



Admiral Carpenter

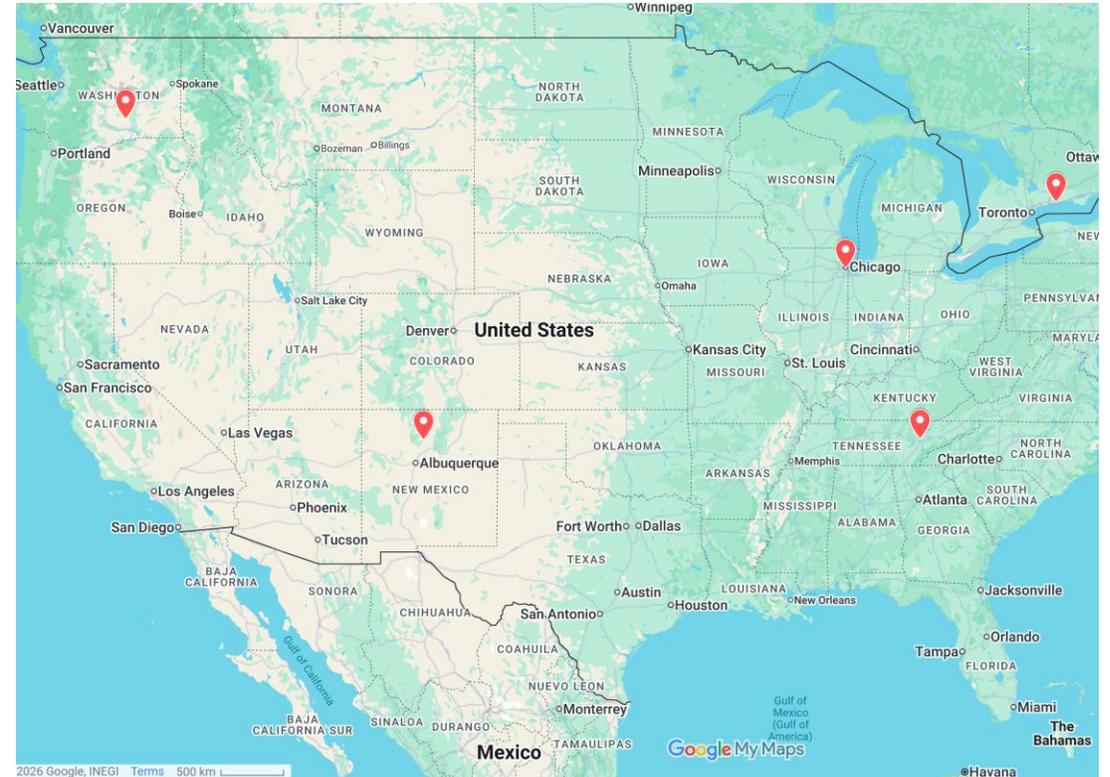
# 10 January 1943 - Guadalcanal

- With the Japanese in the Mount Austen area localized the drive to the west could get underway.
- General Patch planned to extend his Point Cruz-Hill 66 line farther inland and then to push west, destroying the Japanese or driving them from the island.
- General Collins' 25th Division would advance west of Mount Austen on the inland flank.
- The 2d Marine Division would advance between the 25th Division and the beach.
- The Americal Division would hold the main perimeter.
- The Cactus airforce would continue to interdict the reinforcement/resupply of the Japanese by the Tokyo express.



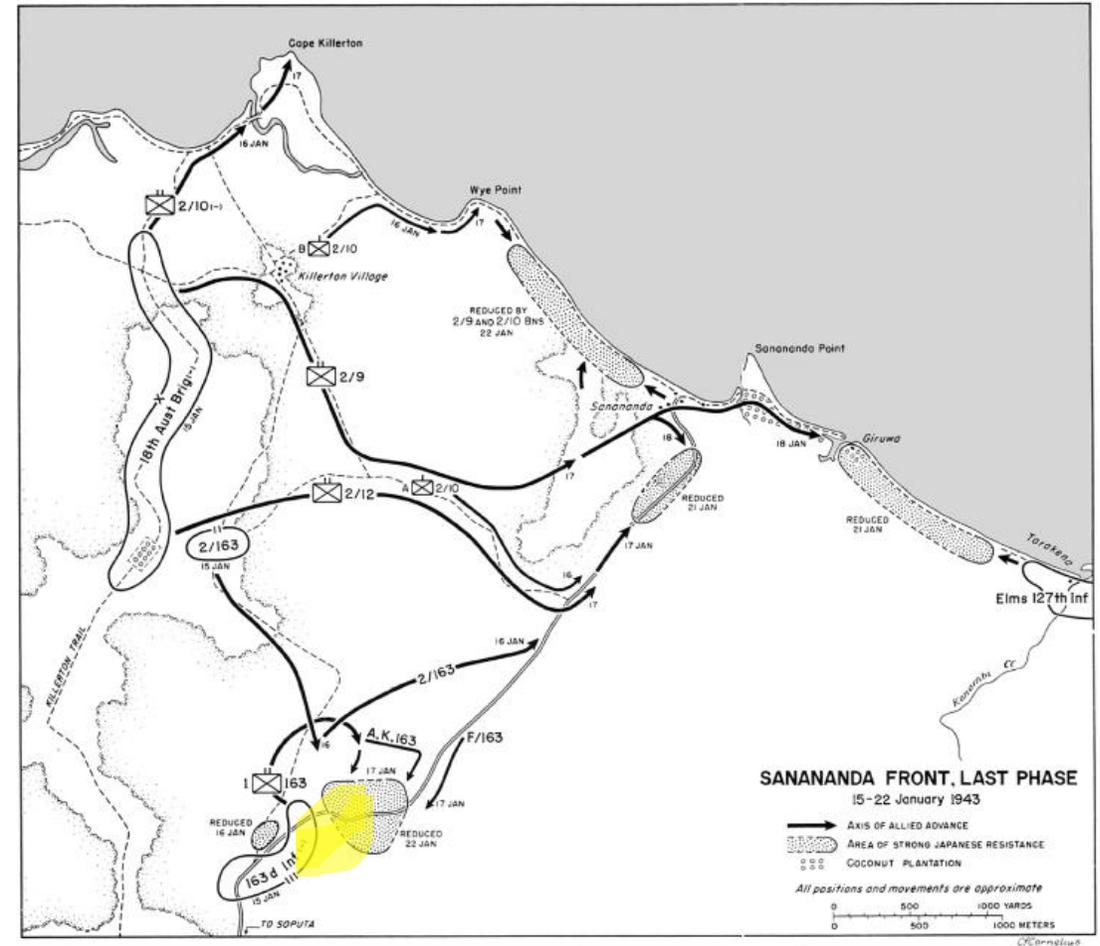
# January 1943 - Manhattan Project

- By December 1942 there were concerns that even Oak Ridge was too close to a major population center (Knoxville) in the unlikely event of a major nuclear accident.
- Groves recruited DuPont in November 1942 to be the prime contractor for the construction of the plutonium production complex.
- DuPont recommended that the site be located far from the existing uranium production facility at Oak Ridge.
- In December 1942, Groves dispatched Colonel Matthias and DuPont engineers to scout potential sites.
- Matthias reported that Hanford Site near Richland, Washington, was "ideal in virtually all respects". It was isolated and near the Columbia River, which could supply sufficient water to cool the reactors.
- Groves visited the site in January and established the Hanford Engineer Works (HEW), codenamed "Site W".



# 22 January 1943 - Sanananda

- The next morning (22<sup>nd</sup>) at 1047, Companies I and L attacked the east perimeter from the south. As before, the troops went in on the run behind the last mortar salvo and again caught the Japanese still in their holes or trying to leave them.
- The position was overrun by 1152, and the mop-up was completed by 1300. This marked the end of all organized resistance on the M.T. Road.
- By evening the mop-up on either side of the road was complete. Giruwa had already been reduced some hours before.
- The 18th Brigade and the 127th and 163rd Infantry Regiments had suffered 828 casualties since being committed to the Sanananda front.
- The Papuan Campaign was over, six months to the day after it had begun.



# 22 January 1943 - The Japanese Beach heads

- The final beachhead phase of operations in Papua was one in which for two and a half months Allied troops suffered heavy casualties while being hastily pressed forward in hideous conditions in repeated attacks on carefully designed, extensively fortified and well manned enemy positions with little more in the way of weapons than their rifles, machine guns, mortars, and hand grenades.
- Intelligence had failed to predict or detect the existence or recent reinforcement of these fortified bases.
- Command failed to notice the change in the nature of operations from a pursuit to a siege.
- Out of their total strength in the combat zone of 10,825 the three combat teams of the US 32d Division suffered 9,688 casualties, including 7,125 sick, a casualty rate of almost 90 percent. Battle casualties included 707 dead, 62 missing, 1,680 WiA, 211 shellshock and 287 battlefield injuries.
- The Australians suffered similar or worse casualties.



# 9 January 1943 – Sanananda

- The relief of the US 126th Infantry troops was completed by the early afternoon of 9 January.
- In a letter to General Eichelberger, Brigadier Porter, who had had them under his command wrote:
- “By now it is realized that greater difficulties presented themselves here than were foreseen, and the men of your division probably bore most of them.”
- When the troops had gone into action during the third week of November, they were 1,335 strong. On the day of their relief, they numbered 165, nearly all of them in such poor physical shape as to be scarcely able to walk.



Brigadier Porter

# 23 January 1943 - Strategy

-----  
III. ENEMY'S PROBABLE NEXT MOVE

- (1) Renewed offensive against Guadalcanal.
- (2) Consolidation Lae-Salamaua area, ~~with infiltration into Papua beach-heads and possible offensive activity east New Guinea area.~~
- (3) Consolidation Timor-Arafura Sea - Dutch New Guinea including possible attempt to occupy Merauke.
- (4) Possible carrier-borne raids from NEI area against strategic points on west and NW coast Australia.

*Lawson*  
For A/DIRECTOR C.O.I.C.  
G.H.Q., S.W.P.A.

# 24 January 1943 - Strategy

- The Casablanca Conference wound up on 24th January.
- Attended by Mr Churchill, President Roosevelt, the Joint Chiefs of Staff and the Joint Planners, the Conference confirmed the "Beat Germany First" strategy decided by the British and American leaders in January 1942 and drew up plans for the immediate and near-future conduct of the war.
- Simultaneously with the Allied offensive in the Mediterranean, the heaviest possible air attacks were to be maintained on Germany from Britain by night and day.
- In the war against Japan, pressure would be applied in a British autumn campaign to recapture Burma.
- In the Pacific, operations for the capture of Rabaul and the clearing of the enemy from New Guinea would continue;
- and if resources permitted, American operations against the Marshall and Caroline Islands would be implemented.



# 29 January 1943 - Air Defence

- On the 29<sup>th</sup> January 1943, the cruisers Chicago and Wichita were escorting a Guadalcanal reinforcement convoy protected by fighters from Enterprise and the escort carriers Chenango and Suwannee, and enemy snoopers were apparently tailing the force.
- CINCPAC had messaged to the OTC that trailers were probably on his tail.
- The FDO on Wichita, who had fighter control and was keeping a detailed plot of the unidentified planes, requested permission of the OTC to use the fighter net to send protecting CAP to intercept the bogies.
- Hesitant to break radio silence, the OTC elected instead to launch a fighter division from one of the carriers, without fighter direction, to find the snoopers and identify them.
- In his mind they were most likely friendlies not showing IFF, and he doubted enemy airplanes were nearby.
- At nightfall, the searchers returned to the carrier and reported no contact, but that night Japanese torpedo planes attacked, putting a torpedo into Chicago.
- The cruiser remained afloat, and the cruiser Louisville took her under tow.



The U.S. Navy escort carrier USS Suwannee (CVE-27) underway at 17 knots in the Puget Sound, Washington (USA), 31 January 1945. One of the class of 4 converted Oilers. 18 knots, 25 – 32 aircraft.

# 30 January 1943 - Air Defence

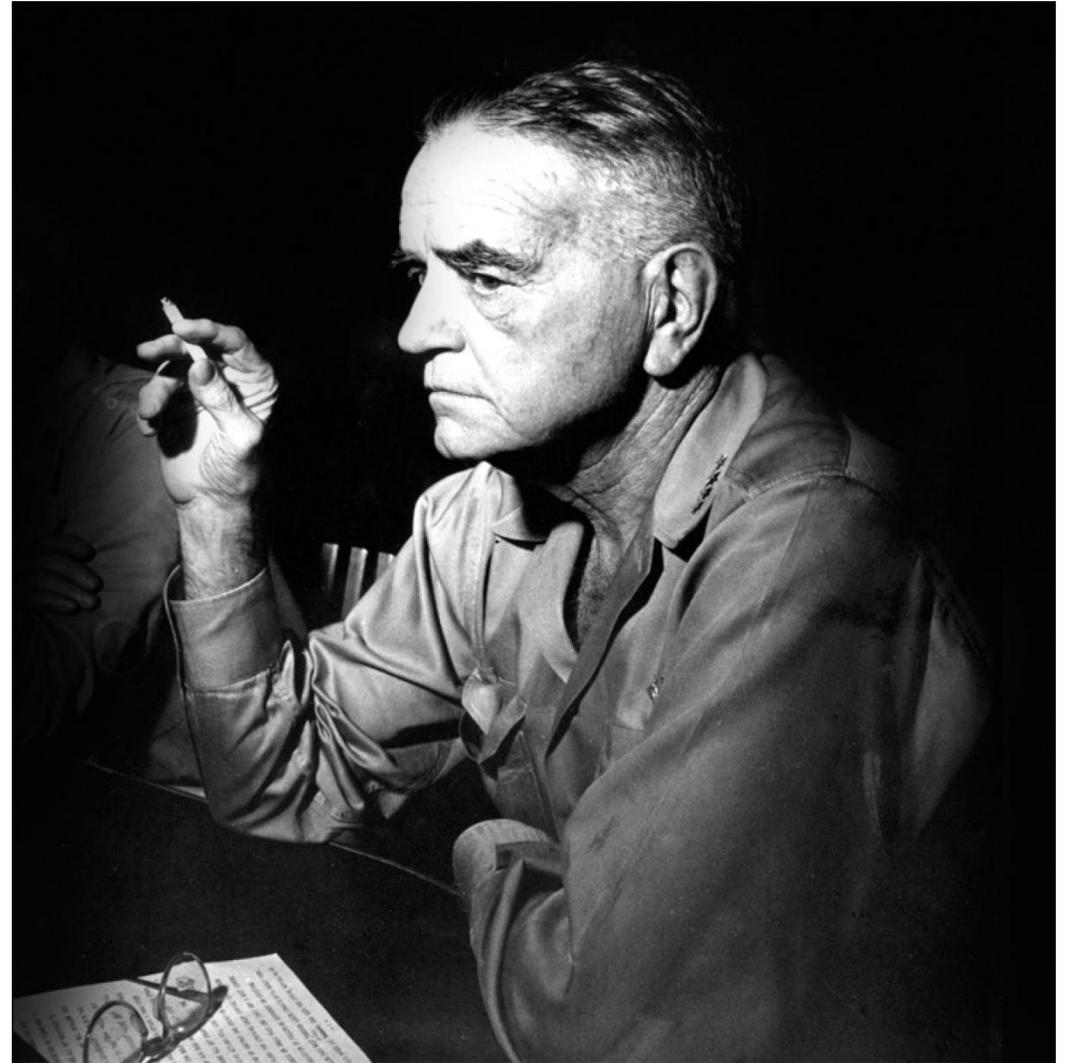
- Louisville took her under tow, transferred the tow to the ocean going tug Navajo the next day.
- Even though she was under strong air cover, Japanese torpedo planes again attacked Chicago without being detected, and in spite of heavy Japanese aircraft losses, hit her with four torpedoes, sending the cruiser under.



USS Chicago low in the water on the morning of 30 January 1943, from torpedo damage inflicted the night before

# 30 January 1943 - Air Defence

- COMSOPAC, Halsey, noted that the non-use of fighter direction communications contributed to Chicago's sinking and continued:
- There should be no hesitancy to break radio silence for direction of fighters under these circumstances....If the enemy already has the information, as indicated in this case by the presence of enemy planes in the area and by the ultimate attack, the imposition of radio silence is unsound.
- Halsey went on to complain that if the FDO had "super frequency [VHF]" radios there would have been no concern about breaking radio silence.
- "For over a year recommendations have been made, based on combat experience, for the production of ultra high frequency and multi channel, quick shift radio equipment. To date operating forces are still suffering from most unsatisfactory equipment."
- COMSOPAC observed that if all friendly planes could be counted on to use IFF at all times, the OTC would have known that the unidentified trailers were enemy.
- He stated the problem was "neglect on the part of aircraft units to provide proper maintenance and continuous adjustments of the equipment" and also because of "pilots not keeping IFF turned on throughout each flight."



# 30 January 1943 - Air Defence

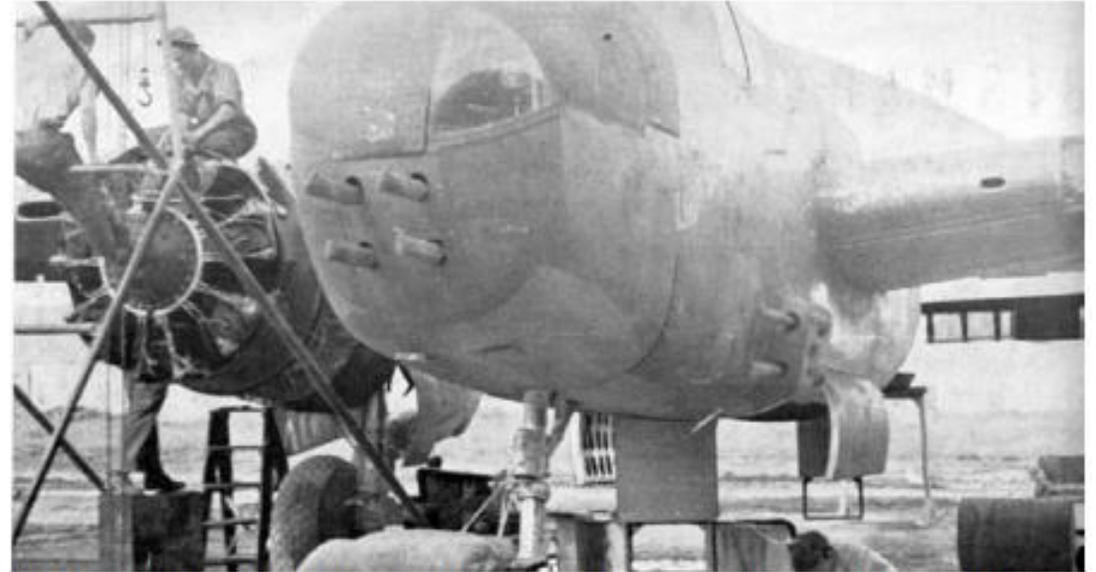
- Reflecting on the inability to detect the second attack on Chicago, Admiral Nimitz wrote:
- “It is axiomatic that all planes in the vicinity of the task force must be continuously tracked and plotted and information on our own planes continuously disseminated to the forces.
- A properly run combat information center as prescribed in 4TB42 should eliminate most of the foregoing deficiencies.”



Nimitz with officers at Henderson Field, Guadalcanal, 30 September 1942

# 31 January - Air

- The training program during the southern summer of 1942-43 was focused on low-level antishipping strikes.
- The 90th Squadron experimented with its newly received B-25C1.
- This was the plane that the “gadgeteers” of the service command, with Kenney’s encouragement and the advice of the legendary Pappy Gunn and Jack Fox, representative in Australia of the North American Aviation company, had modified for strafing.
- They had taken off the lower turret and the tail gun of the standard model and had added four forward-firing guns in the nose and four more in blisters attached on either side of the fuselage.

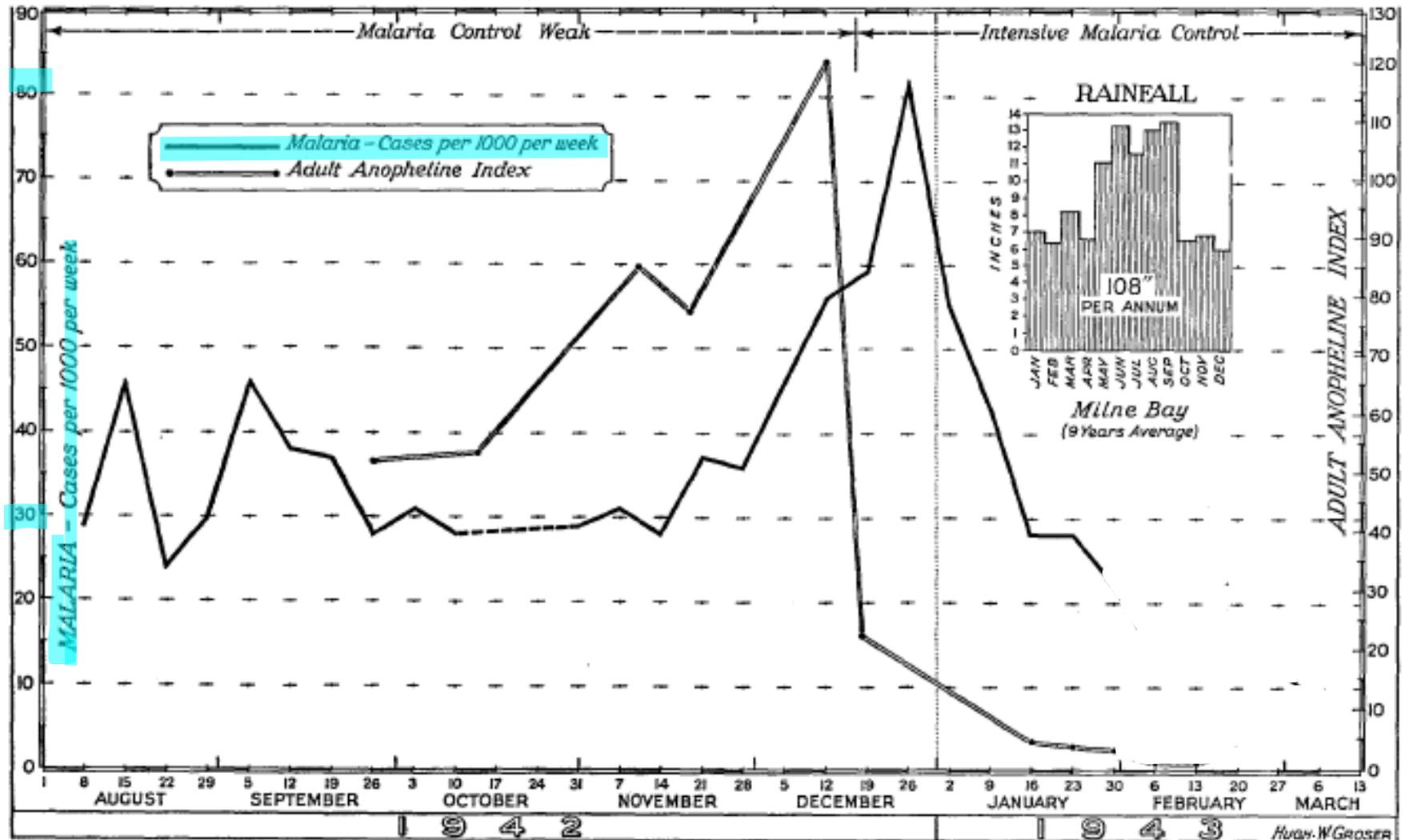


Early modification of B-25. (AAF photo from Assistant Chief of Air Staff, Intelligence, US Army Air Forces, “First Hand Accounts Make Minimum Altitude Bombing Lessons More Specific,” *Impact!* 1, no. 3 [June 1943]: 44.)

In addition to these eight fixed forward-firing guns, the upper turret’s two .50-cal. machine guns could also be fired forward.

# 31 January 1943 – Milne Bay, Malaria

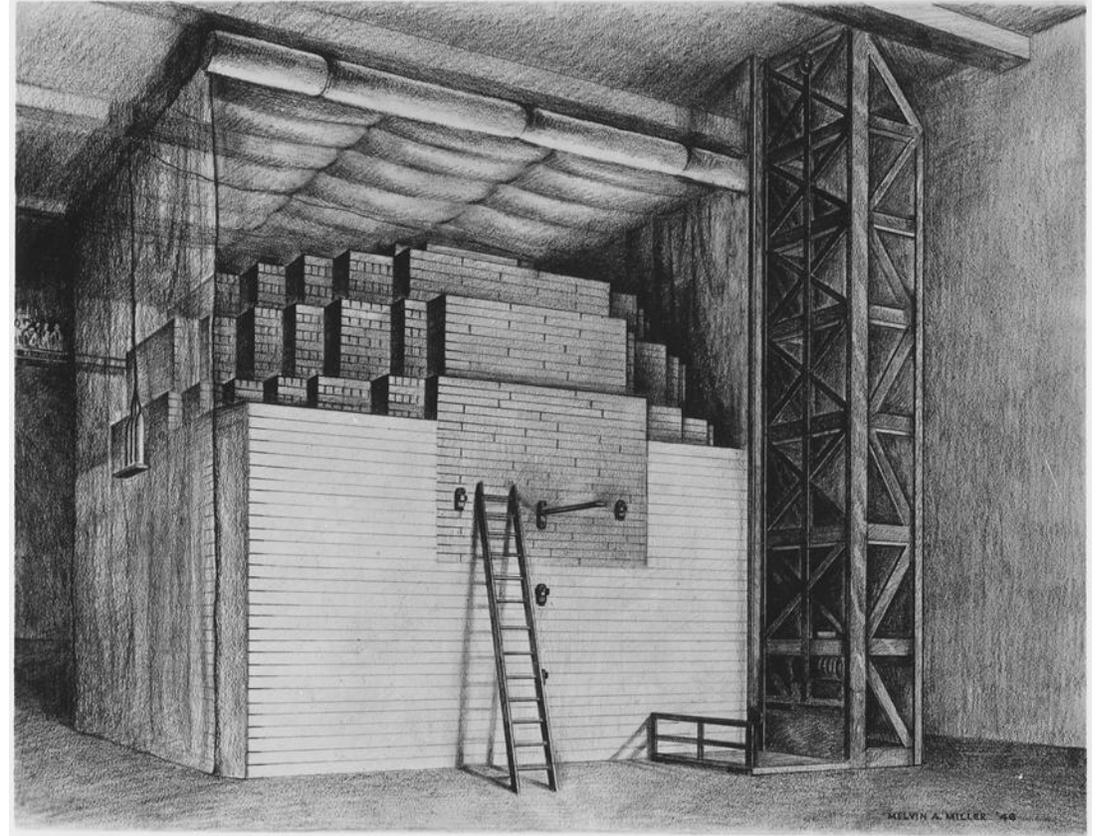
The medical services supported by commanders are starting to make progress in controlling Malaria, which is evidenced by this chart for Milne Bay. It remained easier to control on a base than a battlefield.



Milne Bay: malaria in 1942-1943

# January 1943 - Manhattan Project

- In January 1943, Grafton's successor, Major Arthur Peterson, ordered Chicago Pile-1 dismantled and reassembled at the Site A in the forest preserve, as he regarded the operation of a reactor as too hazardous for a densely populated area.
- Site A continued scientific research as a secret extension of the Metallurgical Laboratory at the university.



# 1 February 1943 - Air

- The strain on the American 374 Troop Carrier Group was intense and the task of maintaining the over-worked Dakotas and other cargo planes was an extreme test of endurance for men and machines.
- The arrival in Australia in January of 317 Troop Carrier Group with 52 new Dakotas coincided with this most exacting period.
- The new aircraft were immediately transferred to the veteran group and 317 Group took over the assorted fleet that had been giving such splendid service.
- In four days (29th January to 1st February) the transport aircraft had made 244 sorties into Wau.
- At its peak there were as many as 18 aircraft in a formation and at times three such formations got through in one morning. Each was covered by between 40 and 50 American Airacobra or Kittyhawk fighters with Lightnings flying as top cover.
- No. 4 (R.A.A.F.) Fighter Sector at Port Moresby, accepted responsibility for air traffic control of the operation.
- The number of aircraft in the air, the challenging nature of the Wau strip, the extreme terrain, the rock filled nature of New Guinea's clouds, the variability of the weather, the continuing threat from Japanese Zeros and the very limited radar coverage made it a most challenging air traffic control task.

## 2 February 1943 - Russia

- The war against Hitler also appears to have turned a corner.
- Russia has survived 21 months of German invasion and enormous losses of men, equipment and territory and in a 5 month long battle has defended the city of Stalingrad and completely destroyed the German armies attacking it.
- The last pocket of German troops surrendered on 2 February 1943. 91,000 prisoners were taken including 22 Generals. Total Axis casualties could have been over a million. Losses of weapons and equipment were also huge.



General Andrey Yeryomenko (right) with the Chief Commissar of the Stalingrad Front, Nikita Khrushchev (left), December 1942.

# 4 February 1943 - Air

- DOBODURA AIRSTRIP.  
*41st Division troops arriving from Port Moresby, 4 February 1943 to relieve the 32<sup>nd</sup> Division.*



# 6 February 1943 - Air

- The three Spitfire squadrons promised to Australia by Churchill in April 42, after the delay caused by Rommel's successful offensive in North Africa in May and June 1942, now arrived in Darwin.
- The Spitfires drew their first blood on 6th February when Flight Lieutenant Foster of No. 54 shot down a Dinah 35 miles west north-west of Cape Van Diemen.



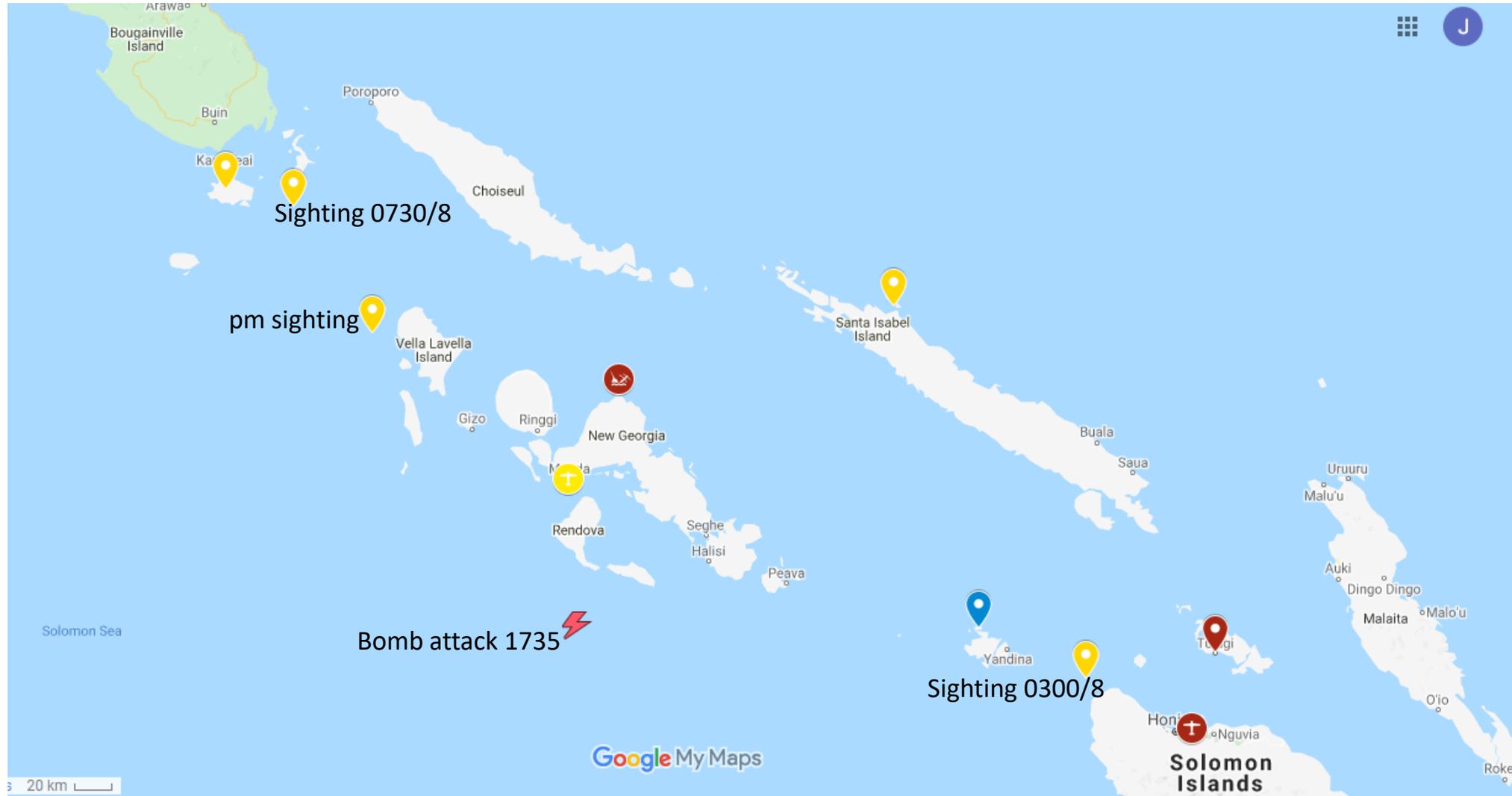
AUSTRALIAN WAR MEMORIAL

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# 7-8 February 1943 - Sea

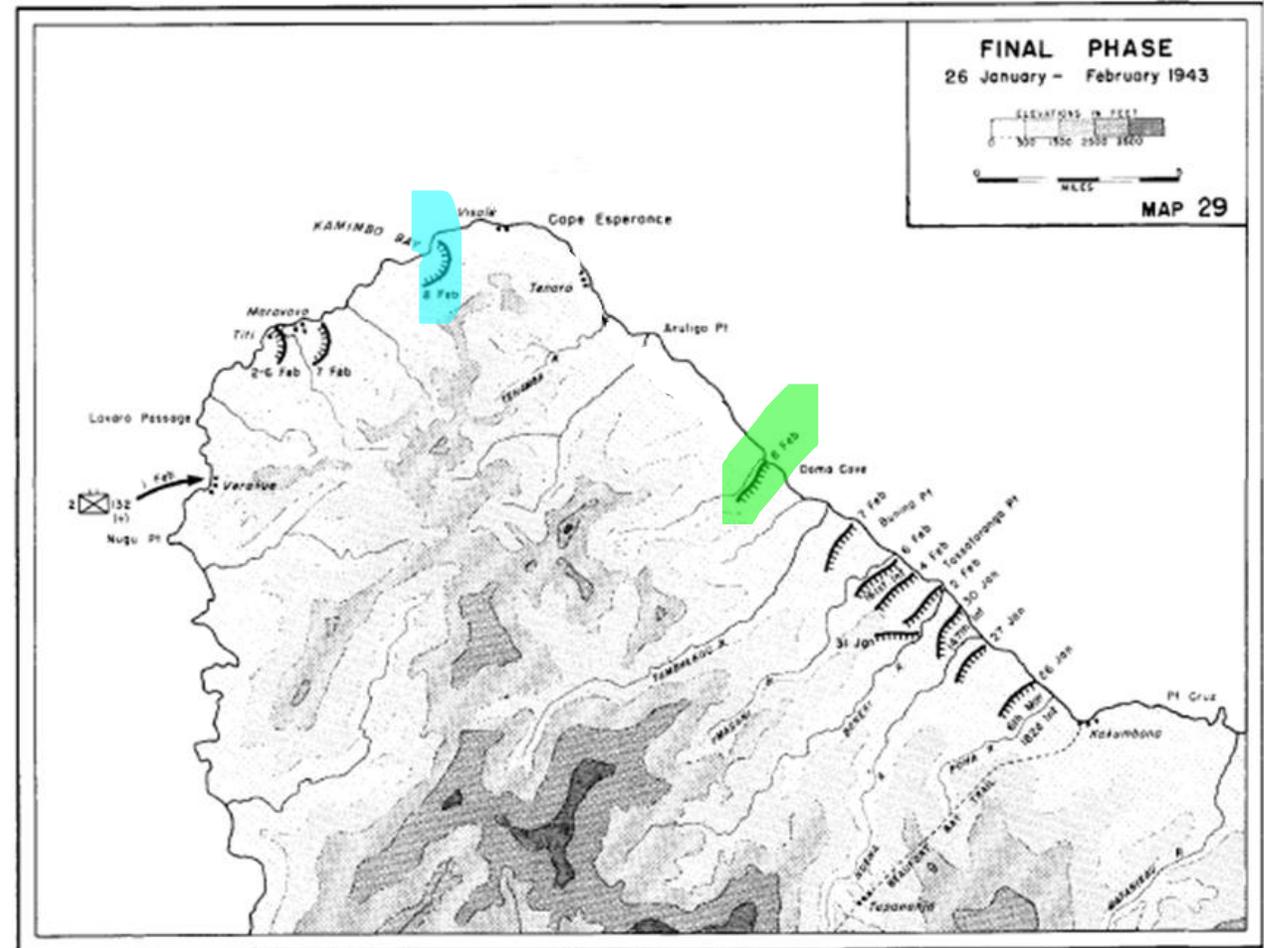
- Another “Tokyo Express” consisting probably of 19 destroyers departed Faisi at about noon 7/2.
- This force was reported again W. of Vella Lavella headed SSE and
- was attacked by 15 Dauntless dive-bombers, escorted by 20 fighters, at 1735/7 20 miles south of Rendova Island. Hits are reported on two destroyers. 15 Zeros accompanied the convoy and 2 were shot down plus one probably. All our aircraft returned.
- A second air strike was cancelled owing to weather.
- At about 0300/8, 3 or 4 ships were believed to be 10 miles NW Cape Esperance.
- At 0730/8 17 destroyers were observed approaching Shortland Is.
- The Commanding General, Guadalcanal, reports that enemy resistance is weakening on the Island indicating that the last two “Tokyo Expresses” have been engaged in evacuating part of the Japanese forces.

# 7-8 February - Sea



# 9 February 1943 - Guadalcanal

- On 8 February the 161<sup>st</sup> Infantry reached Doma Cove some eight miles from Cape Esperance.
- On the same day 2/132 arrived at Kamimbo Bay a short distance from the tip of the island.
- On 9 February the two units met at the village of Tenaru on the coast below the high ground of the cape.
- Only token resistance had been met in these final days.
- Evacuation of the Japanese from Guadalcanal had been completed on the night, of 7/8 February.
- The build up of shipping and the Tokyo Express runs on 1/2, 4/5, and 7/8 of February, interpreted by allied intelligence as reinforcement preparatory to another attack, had actually been an evacuation.
- The Japanese drive south had been stopped, as demanded by Admiral King in July 1942.



# 9 February 1943 - Government

- On the 9<sup>th</sup> the Government learnt, through MacArthur, that the United States War Department had assigned the Sixth Army to the South-West Pacific Area.
- The Australian understanding of this news was that the Sixth Army consisted of two corps, each of three divisions;
- that the 32nd and 41st Divisions and the Marine Division already in Australia would comprise one corps and
- that an additional force of three divisions would be sent from the United States.



General Walter Krueger  
Commanding General Sixth Army

# 9 February 1943 - Government

- The B.H.P. steamer Iron Knight (4,812 tons) with a cargo of iron ore from Whyalla for Newcastle, was torpedoed 21 miles from Montague Island at 2.25 a.m. on the 8th.
- She was in convoy "OC68", of ten ships escorted by H.M.A. Ships Mildura (Senior Officer) and Townsville. Iron Knight was leading ship of the starboard column, and Townsville was seven to eight cables on her starboard beam.
- The torpedo, whose wake was sighted from Townsville, passed under the corvette and struck Iron Knight under the bridge, and with her dead weight cargo she sank within two minutes.
- Discussing the sinking of the Iron Knight at the Advisory War Council meeting on the 9<sup>th</sup> February, Royle said that the escort of two corvettes for ten ships was considered reasonable.
- "With the resources at present available, the only method of increasing surface escort would be to reduce the number of convoys, and if the position became acute this would have to be considered."



Vice Admiral Sir Guy Royle RN  
Chief of Australian Naval Staff

# 9 February 1943 - Government

- The fact that Townsville had not detected the submarine even after the torpedo had passed beneath her seems to me to indicate that more escorts would not have solved the problem.
- More and better radar and in particular aircraft with radar was the solution to submarines in the Atlantic.
- All Townsville could really do was rescue the survivors.



HMAS Townsville in 1946

# 9 February 1943 - Government

- To offset the shortage of surface escorts, air escort was provided for ships sailing in groups as distinct from being in convoy.
- On 9th February three American ships—Jim Bridger (7,180 tons) , Archbishop Lamy (7,176 tons), and Starr King (7,176 tons)—were to leave Sydney in company and be covered during daylight by one aircraft.
- Starr King was some two hours late, and so did not enjoy direct air cover since there was no other aircraft available.
- Jim Bridger and Archbishop Lamy were personally conducted until 8.14 p.m. on the 9th, when, 100 miles from Sydney, the aircraft left them.
- Next morning one of the Hudsons on the morning search from Sydney sighted, at 9.48 a.m about 150 miles east of Sydney, "a Liberty ship sinking rapidly". It was the Starr King, torpedoed three and a half hours earlier.
- She had been struck by two torpedoes at a one hour interval.
- The destroyer, H.M.A.S. Warramunga, sailed from Sydney and reached the stricken American ship in the early afternoon of the 10<sup>th</sup>.



Warramunga in 1944.

An attempt to tow Starr King was unsuccessful, and she sank at 2.30 a.m. on the 11th, and Warramunga returned to Sydney with her survivors.

# 9 February 1943 - Government

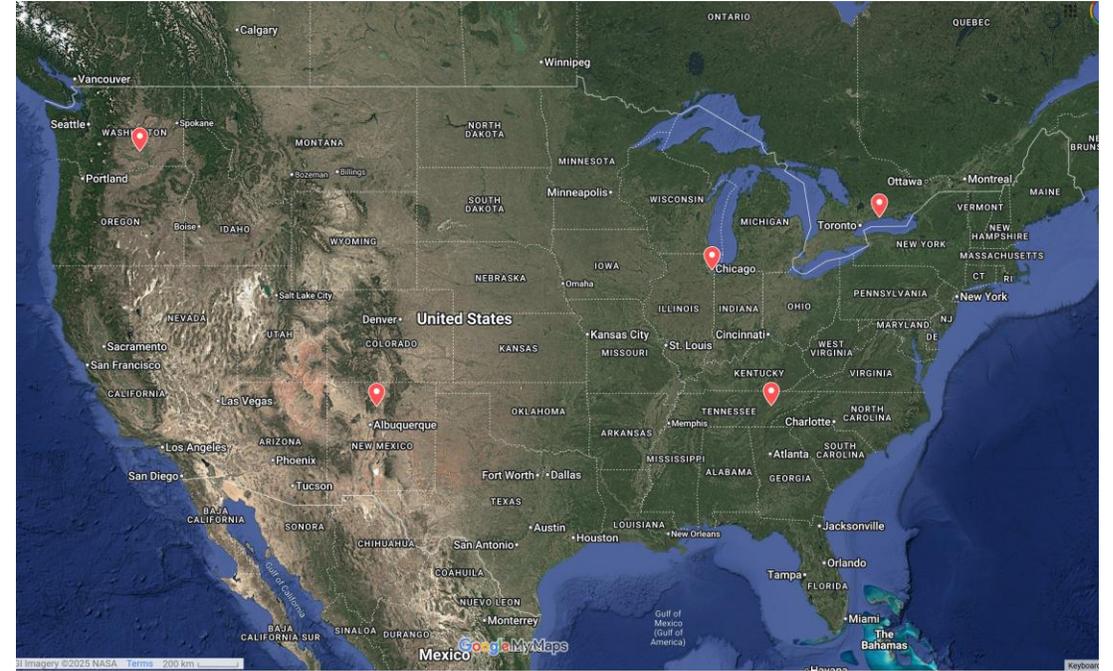
- An initial order for 180 Beauforts, designed as maritime bombers, was placed in July 1939 with the Department of Aircraft Production, for delivery in equal numbers to the RAAF and RAF.
- An embargo by the British Government on the export of War Material after the Fall of France meant many components including the engines had to be sourced from America or locally manufactured. This caused extensive design changes with attendant delays.
- Nevertheless the first flight of the first aircraft was in August 1941.
- By December 1942 the Beaufort Division of the Department of Aircraft Production (DAP) had produced 208 aircraft.
- I don't understand why one more aircraft could not be found to escort a valuable ship leaving Australia's biggest port.



Beauforts being built at the DAP plant in Fisherman's Bend, Melbourne. The ASV radar aerial array on the rear fuselage and a small blue/white Pacific Theatre roundel indicates this is a late Beaufort Mk VIII.

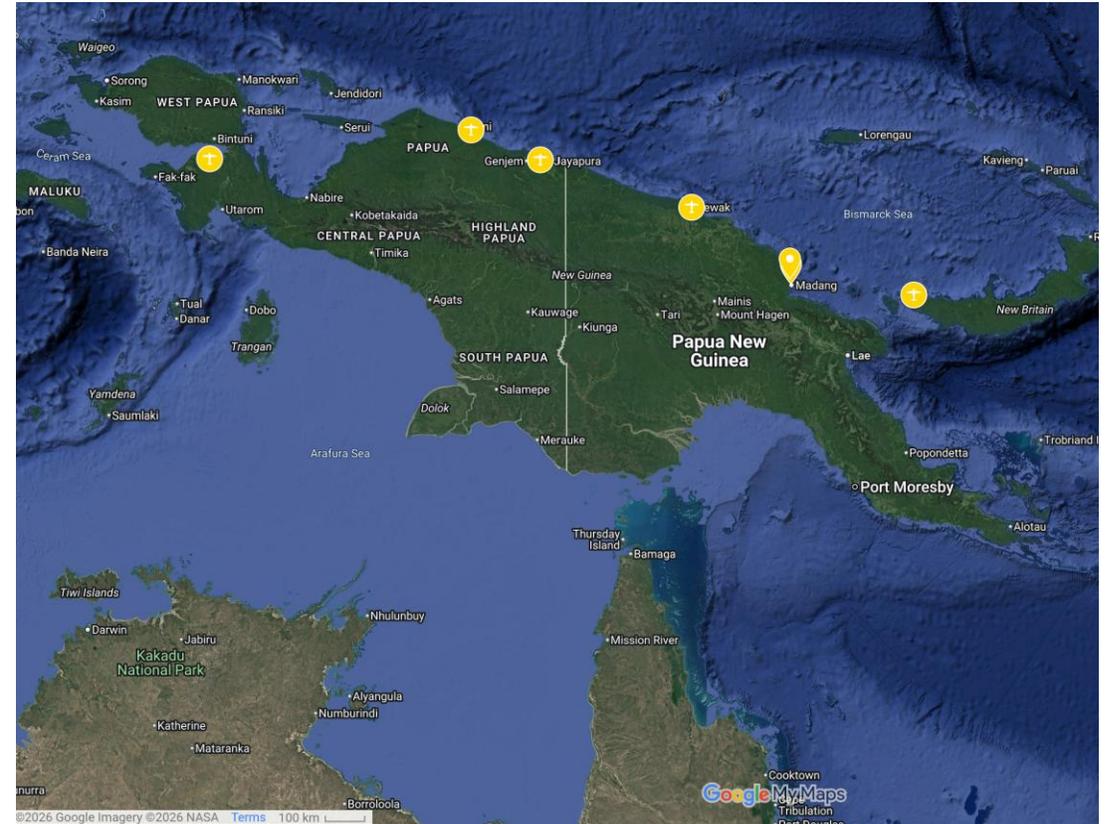
# 9 February 1943 - Manhattan Project

- February 9: Patterson approves acquisition of 400,000 acres (160,000 ha) at Hanford.



# 13 February 1943 – Air

- Intelligence reports told of increasing Japanese activity in airfield development along the north coast of New Guinea from as far west as Babo eastwards to Lae. This included
  - a 1,400-yards runway on Wakde Island,
  - one of 1,300 yards on a site inland from Hollandia Bay,
  - a large airfield at Wewak which already had 77 dispersal bays,
  - and road construction at both Madang and Alexishafen.
- There were, too, reports of comparable activity on Cape Gloucester.



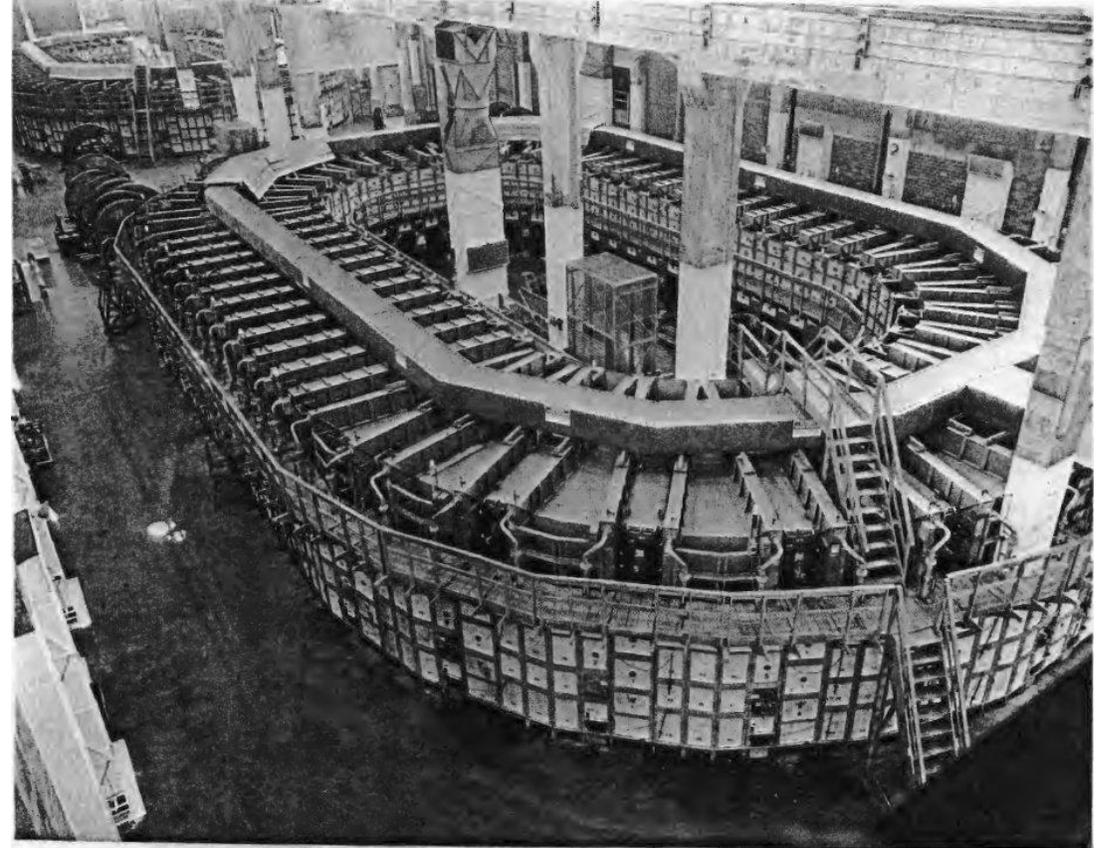
# 14 February 1943 - Sea

- A week before the landings on the Russel Islands American reconnaissance parties reconnoitred the islands.
- Their arrival was anticipated by that of two Australian coastwatchers, Lieutenant Campbell, and Sub-Lieutenant Andresen, who reported that the area was clear of Japanese.
- Some days later: "They [the Americans] arrived in the Russells, armed to the teeth, magazines charged and fingers on triggers, to be greeted by Campbell with the prosaic invitation to a cup of tea."



# February 1943 - - Manhattan Project

- Responsibility for the design and construction of the electromagnetic separation plant Y-12 at Oak Ridge, had been assigned to Stone & Webster in June 1942.
- The design called for five first-stage processing units, known as Alpha racetracks, and two units for final processing, known as Beta racetracks.
- Construction began in February 1943.



Alpha I racetrack at Y-12

# 18 February 1943 – B29

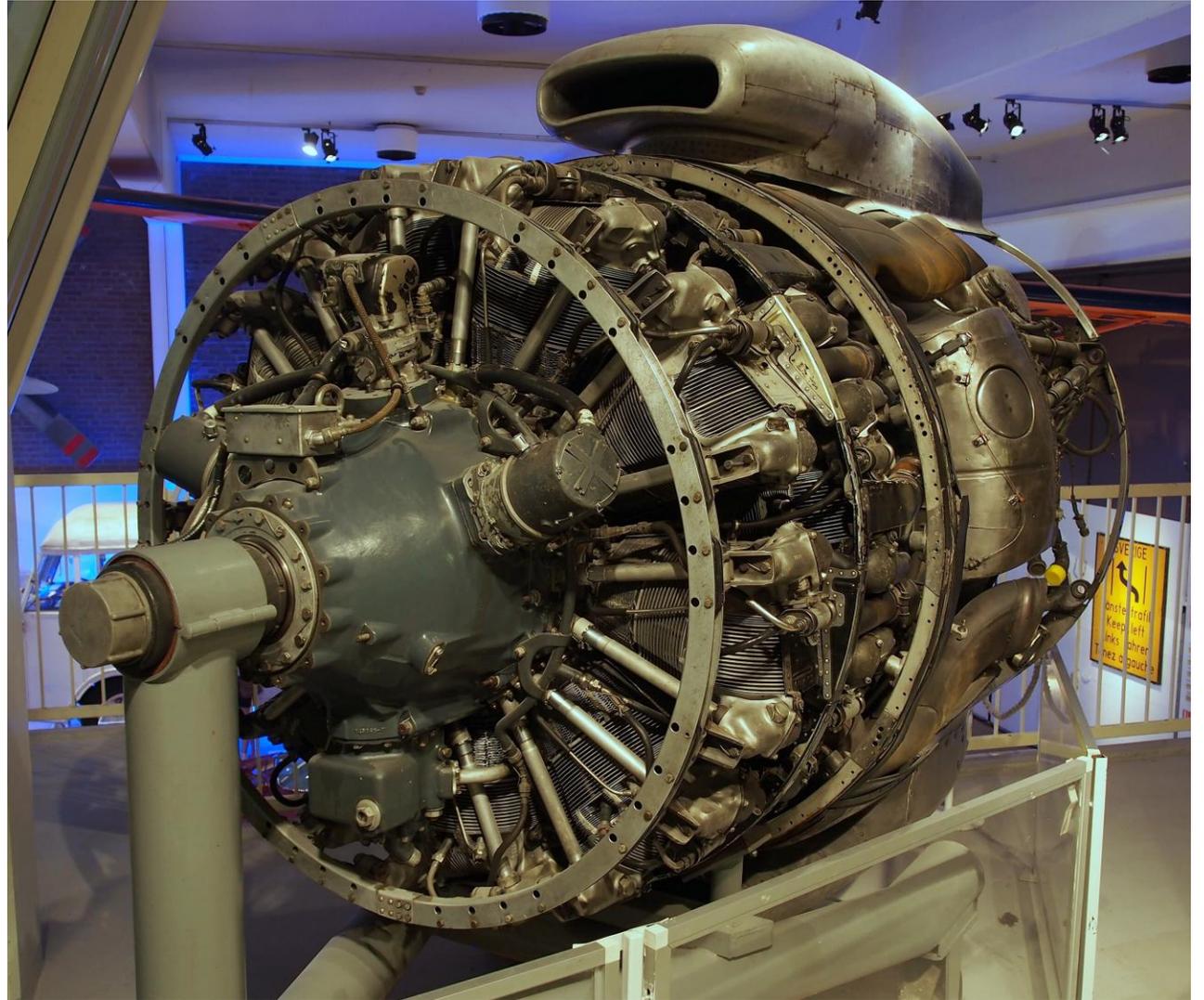
- On 18 February 1943, the second prototype B 29, flying out of Boeing Field in Seattle, experienced an engine fire and crashed.
- Boeing test pilot Edmund T. Allen and his 10-man crew, 20 workers at the Frye Meat Packing Plant, and a Seattle firefighter were killed.



The Frye packing plant on fire, 18 February 1943.  
(Seattle Post-Intelligencer)

# 18 February 1943 – B29

- The Wright R-3350 Duplex-Cyclone is a twin-row, supercharged, air-cooled, radial aircraft engine with 18 cylinders displacing nearly 3,350 cubic inches (54.9 L).
- Developed before World War II, the R-3350's design took a long time to mature and was still experiencing problems with reliability when used to power the Boeing B-29 Superfortress.
- By 1943 the B-29 was flying with R-3350s. The engines remained temperamental, and the rear cylinders tended to overheat, partially due to inadequate clearance between the cylinder baffles and the cowl.



# 25 February 1943 - Guadalcanal

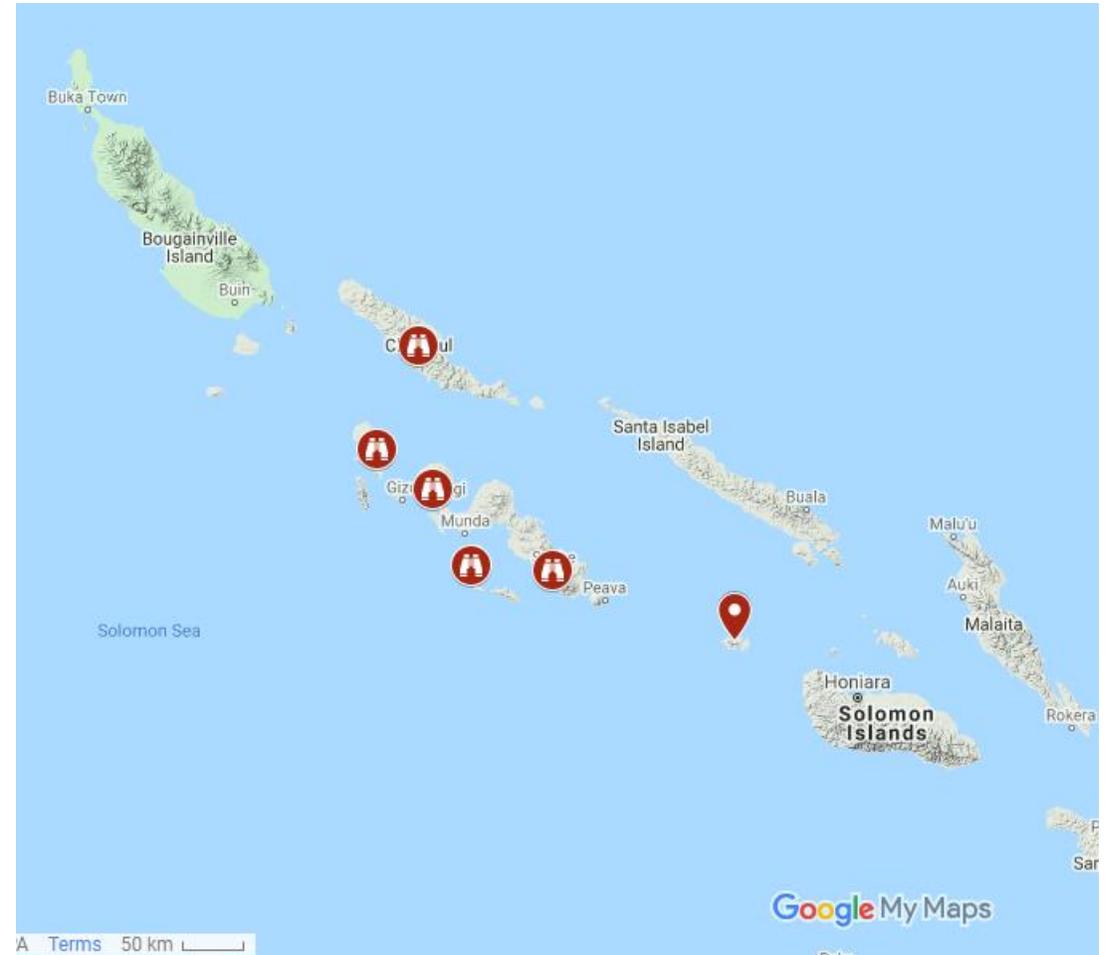
- Extracts from letters sent to Lieut Commander Mackenzie, R.A.N., at the headquarters on Guadalcanal, were signalled to the Coastwatchers behind the Japanese lines, who had provided such an effective warning and intelligence service for Guadalcanal:
- From General Patch, Commanding General at Guadalcanal—"Your magnificent and courageous work has contributed in great measure to success of operations on Guadalcanal."
- From Admiral Turner, Commanding Amphibious Forces—"Large share credit our successes against enemy due splendid men in coast watcher service."



Admiral Turner

# 25 February 1943 - Sea

- Coastwatchers were well placed to watch Japanese movements against Guadalcanal initiated at Buin.
- Sometimes every coastwatcher in the chain reported them.



# 25 February 1943 - Sea

- USS *Princetown* (CVL23) the second of the Independence class of fast light carriers was commissioned on 25<sup>th</sup> February 1943.



Two fleet carriers from the outbreak of the war, USS *Saratoga* and USS *Enterprise*, moored near the *Essex*-class USS *Hornet*. Beyond *Hornet* is the *Independence*-class USS *San Jacinto*.

# 27 February 1943– Sea

- The Sydney section of the Pamphlet convoy bringing the 9<sup>th</sup> Division AIF home from the Middle East reached Sydney without incident on 27th February.
- The Division was sent on 21 days leave before being concentrated in the Atherton area in Queensland for re-equipping and reorganisation as a jungle division.



Queen Mary arriving in Sydney Harbour on 27 February 1943

# February 1943 - Manhattan Project

- In November 1942 the centrifuge process had been abandoned by the Military Policy Committee.
- Electromagnetic separation, gaseous diffusion, and thermal diffusion technologies were all then pursued and contributed to the project.
- In February 1943, Groves came up with the idea of using the output of some plants as the input for others.
- Uranium hexafluoride was transported between Oak Ridge plants primarily as a solid in heavy-duty steel cylinders (Type 48Y (10 – 14 tons) for unenriched, smaller Type 30B ( 2.3 tonnes) for enriched). These cylinders, holding thousands of pounds, were moved securely via specialized vehicles, ensuring stability against toxicity, pressure, and criticality risks.



30B Type Cylinders

# March 1943 – Tropical Disease

- In September 1942, Blamey sent a military medical mission to Washington and the United Kingdom. The objects of the mission were to
  - represent the truly serious position, particularly with regard to malaria in the South-West Pacific, and to
  - try to obtain adequate supplies of quinine, atabrin, plasmoquine and pyrethrum, and an efficient type of netting.
- Data collected from recent observations of the problem of malaria facing the Allied forces in the Pacific zone was welcomed by the Medical Intelligence Branch of the Surgeon-General's Office and was widely circulated.
- Important information was also gained about insect repellents. Citronella was not proving very effective in the Australian Services, and its use was unpopular because it was greasy.
- On enquiry it was found that recent work on dimethyl phthalate showed that, although not so effective as ethyl-hexanediol, it proved very effective for both mosquitoes and mites ("chiggers"), as well as sandflies and fleas.
- A strong recommendation was made that dimethyl phthalate should be adopted as the standard repellent in Australia.
- The first bulk supplies of dimethyl phthalate reached troops in New Guinea in March 1943.

# March – Tropical Disease

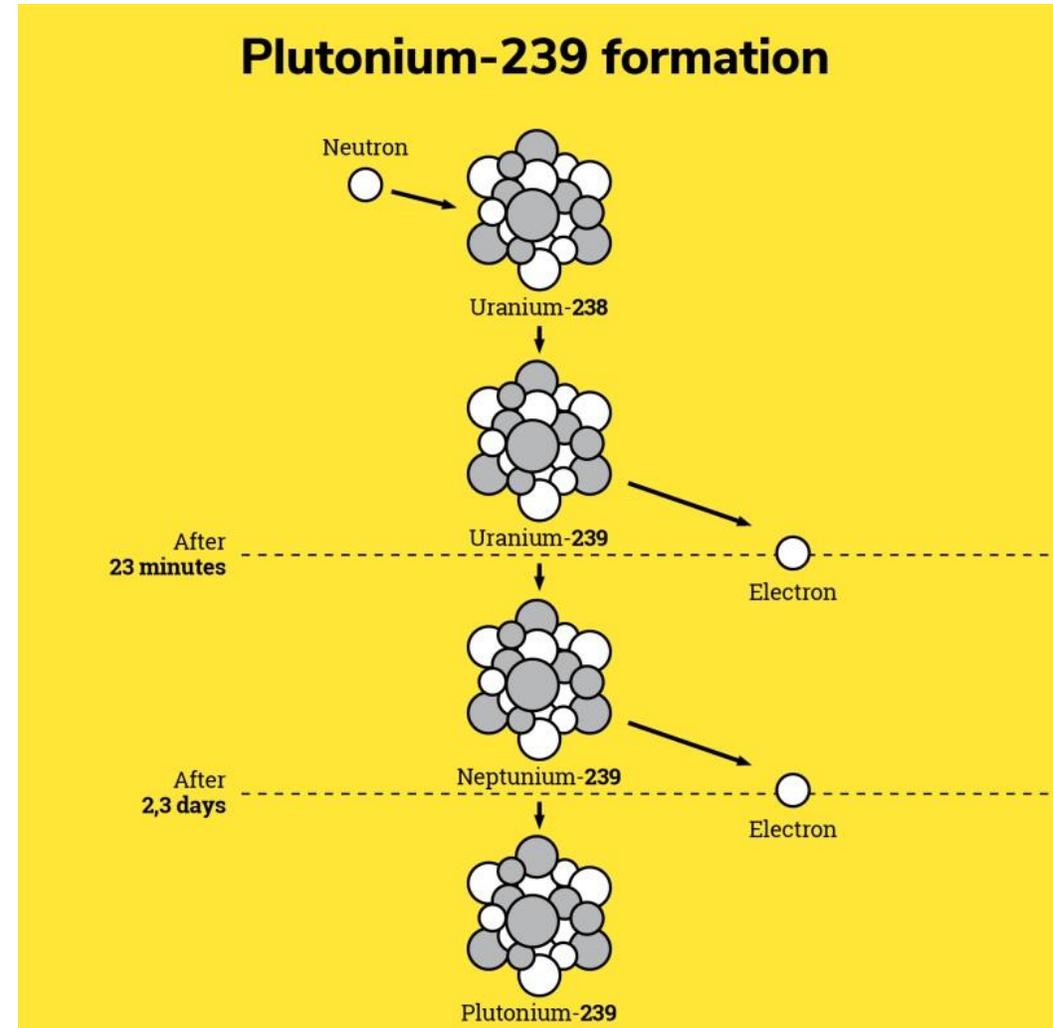
- It was clear in every way that the Allied malaria war would depend largely upon Atebrin after the Japanese overran all the Quinine production areas.
- Most of the production had to fall on American industry.
- To make each ton of atebrin in Australia it would be necessary to import about 20 tons of raw materials.
- Blamey's pursuit of mosquito netting supplies in America was due in part to the fact that all the army's stocks of netting had been taken to Greece in 1941 and lost there with all the expedition's other supplies and equipment.
- Ironically the Allies had been chased out of Greece in April before the start of the malaria season.



posted at the 363rd Station Hospital in Papua New Guinea during World War II. Otis Historical Archives of "National Museum of Health & Medicine" (OTIS Archive 1)

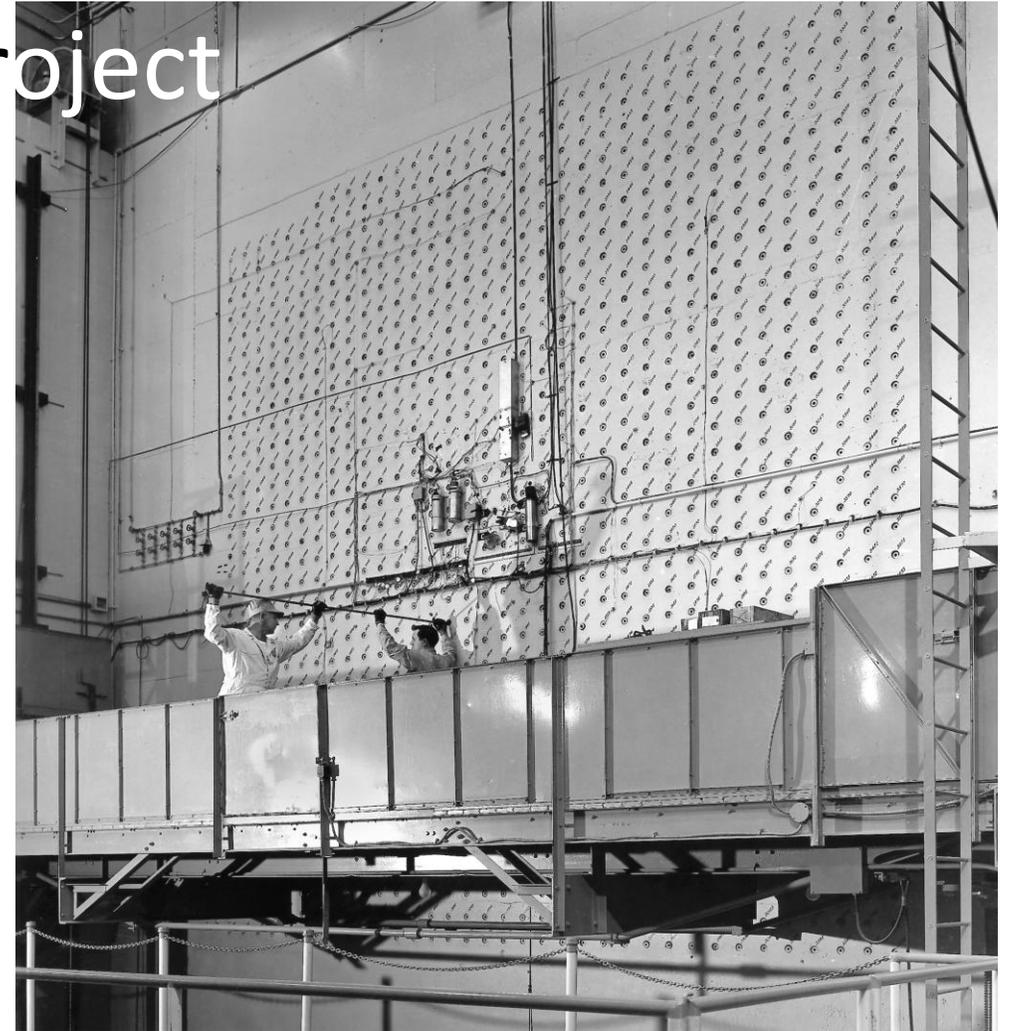
# March 1943 - Manhattan Project

- The second line of development pursued by the Manhattan Project used plutonium.
- Although small amounts of plutonium exist in nature, the best way to obtain large quantities is via a reactor. Natural uranium is bombarded by neutrons and transmuted into uranium-239, which rapidly decays, first into neptunium-239 and then into plutonium-239.
- As only a small amount will be transformed, the plutonium must be chemically separated from the remaining uranium, from any initial impurities, and from other fission products.



# March 1943 - Manhattan Project

- In March 1943, DuPont began construction of a plutonium plant on a 112-acre site at Oak Ridge.
- Intended as a pilot plant for the larger production facilities at Hanford, it included the air-cooled X-10 Graphite Reactor, a chemical separation plant, and support facilities.
- The X-10 Graphite Reactor consisted of a huge block of graphite, 24 feet per side, weighing around 1,500 tons, surrounded by 7 feet of high-density concrete as a radiation shield.



Workers load uranium slugs into the X-10 Graphite Reactor.

# 3 March 1943 - Sea

- The airforces had struggled throughout the war to effectively attack ships at sea.
- After increases in strength and changes to doctrine, equipment and training the Allied Airforces commanded by 5<sup>th</sup> Airforce Advon at Moresby smashed a Lae reinforcement convoy in the Battle of the Bismark Sea on 2 & 3 March 1943.
- All eight transports and four of the escorting destroyers were sunk. Of 6,900 troops who were badly needed in New Guinea, only about 1,200 made it to Lae.



## 6 March - Sea

- The US Navy's record in surface to surface actions against the Japanese had varied from expensive draws to disastrous losses.
- On the night of 5 March 1943, Task Force 68, consisting of three light cruisers, USS Montpelier, Cleveland, and Denver, and three destroyers (USS Conway, Cony, and Waller) commanded by Rear Admiral Aaron Merrill was en route to commence bombarding Japanese positions at Vila.



CruDiv 12 in Havannah harbor, Éfate (New Hebrides) in 1943. *Cleveland* (CL-55), *Columbia* (CL-56), *Montpelier* (CL-57), flag, and *Denver* (CL-58).

# 6 March 1943 - Sea

- The U.S. force was proceeding in a southwesterly direction about 2 miles (3.2 km) off the New Georgia coast, cruising at about 20 knots (37 km/h; 23 mph).
- They encountered two Japanese destroyers sailing in the opposite direction along the east coast of Kolombangara.
- First contact was established by the U.S. radar operators around 00:57 on 6 March and firing commenced at 01:01. The U.S. cruisers engaged to starboard with their 6-inch guns at a range of around 11,000 yards.

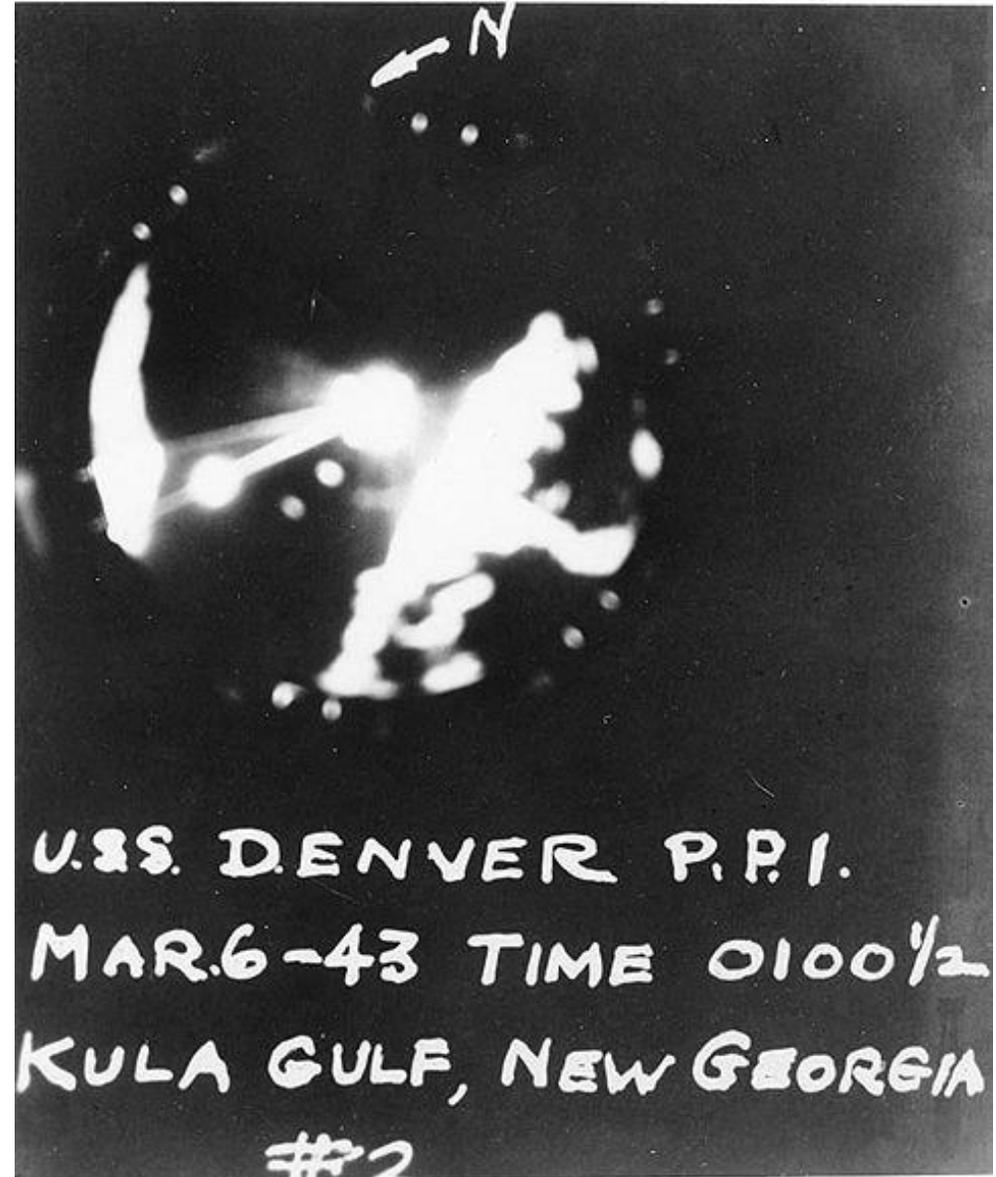


# 6 March 1943 - Sea

- The entire opening salvo straddled the leading destroyer, which was hit by the sixth salvo of American gunfire.
- The U.S. cruisers then rapidly shifted target, doing so before the second destroyer could release any torpedoes.
- After a few minutes the second Japanese destroyer was also hit and began sinking in short order. Firing ceased at 01:14.
- A salvo of five torpedoes had been fired by the destroyer Waller. At around 01:15, one of these torpedoes hit one of the targets, which exploded, caught fire and sank.
- After this Battle of Blackett Strait the task force proceeded on its bombardment task delayed by only 16 minutes

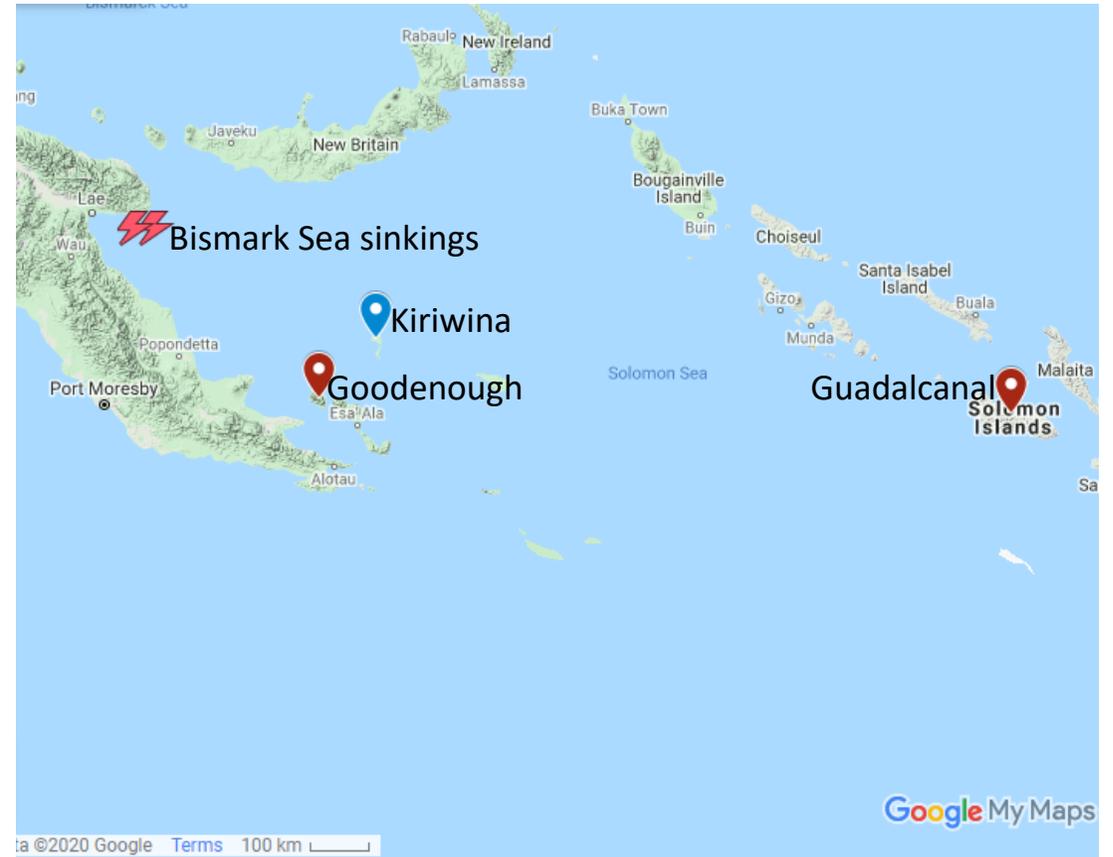
*Radarscope image from Denver at around 01:00, just before opening fire. The large spot just off the Kolombangara shore is the Japanese destroyers Minegumo and Murasame.*

Photo # NH 100386 Action in Kula Gulf, 6 March 1943. Radarscope image at 0100½ Hrs



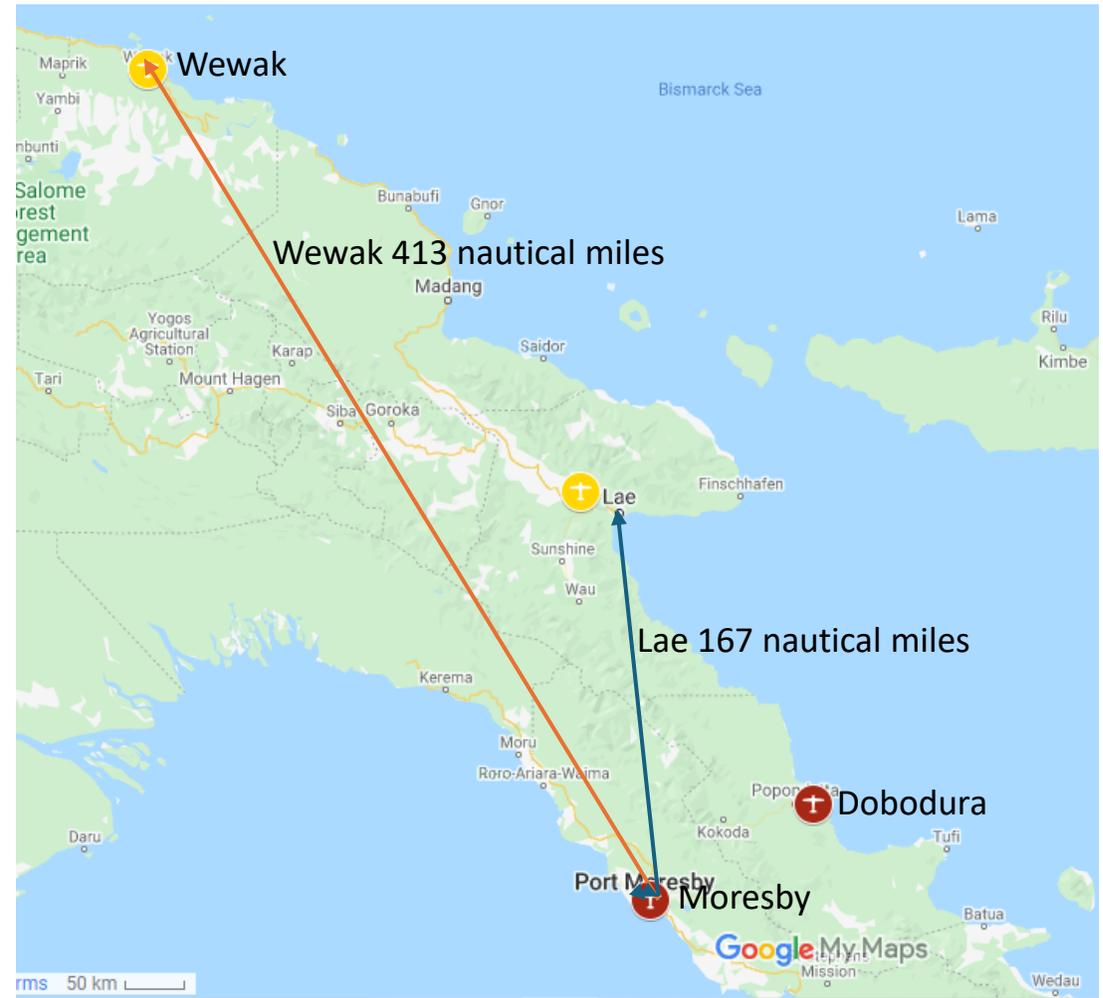
# 14 March - Sea

- Between the 8th and the 14th Australian patrols of the 47<sup>th</sup> Battalion on Goodenough Island killed 72 Japanese, captured 42 and found 9 dead on a raft.
- Other survivors from the Lae convoy were picked up on Kiriwina and even as far to the east as Guadalcanal.
- One patrol on Goodenough, under Captain Pascoe, stalked a group of eight Japanese, who had landed in two flat-bottomed boats, killed them all, and found that the boats contained large quantities of documents in sealed tins. These were hurried back to headquarters in Brisbane where the documents were found to include a complete Army List showing the names of all Japanese officers and their units. Examination and collation provided a complete and detailed picture of the Japanese Army.
- Soon afterwards a conference was held at Washington to disseminate this new information to intelligence staffs at all Allied headquarters.



# 14 March - Sea

- On 3 March during the Battle of the Bismark Sea the Allied Air Forces had flown more than 120 sorties against the convoy as it approached Lae, sinking 4 destroyers and a transport.
- There were more than 20 B17 sorties as well as sorties by B25s, including some modified strafers, Beaufighters, Bostons, Beauforts and P38s.
- The Wewak convoy was beyond the range of all but the B17s and their effort was probably limited by availability after 4 days of maximum effort during the Bismark sea at the beginning of the month.



NB you cannot actually fly as the crow flies across New Guinea.

# 17 March 1943 - Sea

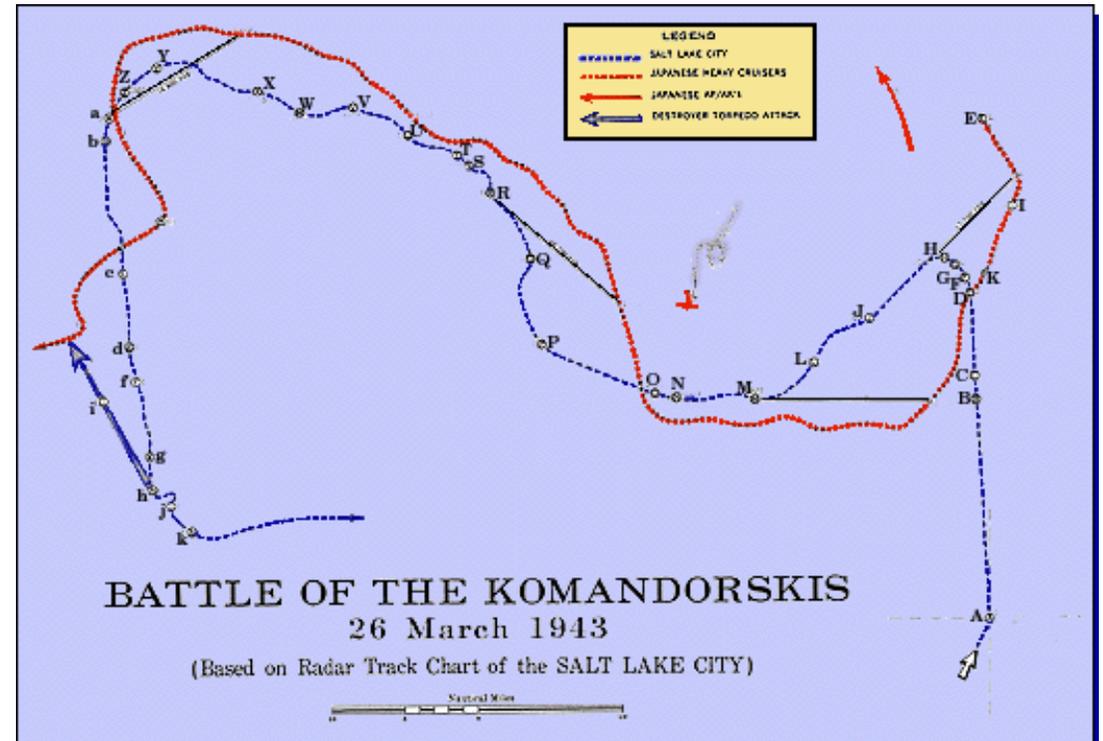
- In March 1943 the American attack transport (A.P.A.) Henry T. Allen (12,400 tons) reported at Sydney to join the force.
- On 17 March Allen was assigned as flagship, Commander Amphibious Force, Seventh Fleet.
- Barbey established his headquarters aboard the Allen on the Brisbane River.
- The VII Amphibious Force inherited the Royal Australian Navy amphibious training center HMAS Assault at Port Stephens, New South Wales and a Combined Training School at Bribie Island and nearby Toorbul Point in Queensland.
- It also inherited Manoora, recently converted to an LSI, the other two former Australian A.M.C.'s were also put into dockyard hands for conversion to LSIs, Westralia in December 1942 and Kanimbla in April 1943.



USS Henry T. Allen leaving Norfolk, Virginia on her way to Operation Torch, 1942

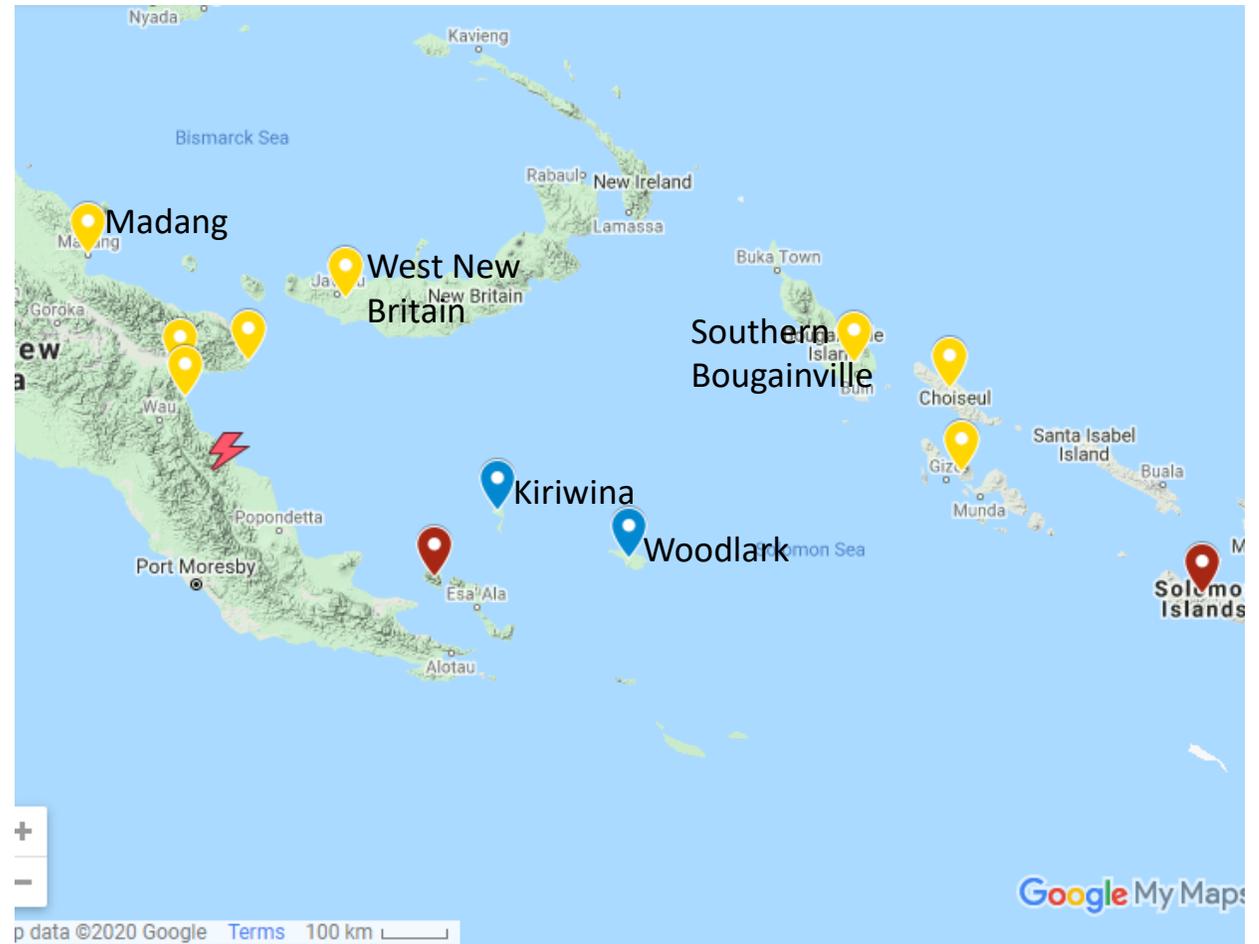
# 26 March 1943 - Sea

- The Battle of the Komandorski Islands was a drawn battle between reasonably evenly matched task forces of cruisers and destroyers in the Far North Pacific.
- It was fought to contest access to Attu & Kiska the Aleutian Islands occupied by Japan.
- The Heavy Cruiser Salt Lake City was badly damaged by gunfire.
- Admiral McMorris' retiring in front of the Japanese at 30 knots maintaining the range above 18,000 yards kept his ships out of the range of the Japanese type 93 torpedoes which had caused so much damage at the Battle of Tassafaronga.



# 28 March 1943 - Strategy

- General Marshall issued a directive to MacArthur dated 28th March stating:
- **Tasks**
- (a) Establish airfields on Kiriwina and Woodlark Islands.
- (b) Seize Lae Salamaua Finschhafen Madang area and occupy western New Britain.
- (c) Seize and occupy the Solomon Islands to include the southern portion of Bougainville.



# The Damien Parer Video of the Battle of the Bismark Sea is at:

[https://www.youtube.com/watch?v=cgone\\_pq1tc](https://www.youtube.com/watch?v=cgone_pq1tc)

