PANAMA AND ITS CANAL IN WORLD WAR 2: BACKGROUND TO THE DEFENCES

INTRODUCTION

From the date of its opening in 1914 until its handing over to the Panamanian Government in 1999 (and at least to some extent afterwards) the security of the Panama Canal was seen as vital to the safety and security of the United States itself. This was certainly true in popular opinion, and supported publicly by the armed forces.

In the years before World War 2, in defence terms, the Canal's most important role was to facilitate the movement of the US fleet from the one coast of the Continental US to the other. This was in an era where the chief threat came from the sea, and before the advent of long-range bombers capable of crossing oceans, or missiles that could arrive from another continent. The US Navy was then to keep an enemy fleet at a distance, using bases that were guarded by strong coastal artillery defences, the job of the Army being to provide that artillery and otherwise protect the bases.

In the same way, the defence policy for the Canal was based on the idea that the Navy was the first line of defence, keeping an enemy at a far distance, and that there would be little chance of a naval and air attack on the Canal unless the Navy had failed in its mission. The Army's role started much closer in, within the range of its big guns, or that of its bombers (which, until World War 2, tended to be modest). One result of this policy was that perhaps the greatest fear for the Canal in the immediate pre-war years was of sabotage, or attacks mounted from neighbouring states.

The difficulty, or impossibility, of providing complete protection for the Panama Canal became obvious in the 1940s and 1950s, the realisation of this being allied to thinking by the 1950s that the value of the Canal to the US was outweighed by the cost of defending it. Indeed, in the immediate postwar years, then President Truman reportedly considered handing over responsibility for the Canal to the United Nations[1].

[1] As we shall see, this echoed a proposal put forward when the Canal was under construction, making the Canal a neutral international waterway.

The security of the Canal faced, or should have faced, its greatest test during World War 2, with capable and aggressive enemies, and with the technology of war progressing to a degree that they might be capable of attacking and crippling the Canal without the need for a direct assault of the kind that the powerful coastal defences were designed to counter. The surprise attack on Pearl Harbor in December 1941 was a clear illustration of this threat. However, there were two arguments that ran counter to this.

Firstly, Germany lacked any aircraft carriers capable of launching the sort of attack required, and Panama was far further from Japan than even Hawaii, increasing the risk of detection and counter *en route* much greater – and after Pearl Harbor the chances of a surprise attack were reduced to close to zero.[2]

Secondly, in 1940 the Two-Ocean Act[3] (which in fact had followed a series of earlier Acts of Congress which had considerably modernised and increased naval strength[4]) confirmed a strategy that would remain from coming war to today – basing US fleets in both the Pacific and Atlantic Oceans. Hence, the critical need to enable the swift transit of one fleet from one ocean to another was negated.[5]

Improvement and expansion of the defences of the Canal begun at the end of the 1930s would continue apace into the early years of World War 2. Not only were the defences and

[2] This fact did not prevent a panic in the days following the Pearl Harbor attack, circumstances that were somewhat like that portrayed in Steven Spielberg's film *1941*.

[3] Also known as the Seventy-Percent Act, the Vinson-Walsh Act or the Second Naval Expansion Act.

[4] The Vinson-Trammell Act of 1934 (or the Naval Expansion Act), which had provided the first major expansion since World War 1, had added 65 destroyers, 30 submarines, an aircraft carrier and 1,184 naval aircraft. The National Industrial Recovery Act (NIRA) of the mid-1930s saw $237 million set aside to construct warships to help improve the economy through increased employment, with the Navy contracting to build 20 destroyers, four submarines, four light cruisers and anther two aircraft carriers. The Naval Expansion Act 1938 added funds for a dirigible, two light cruisers, another aircraft carrier, one large and two smaller seaplane tenders, minelayers, minesweepers, two oil tankers, fleet tugs, and an indefinite number of speedy, experimental torpedo boats (which became the wartime PT boats). The first Naval Expansion Act of 1940 (or the Eleven Percent Act) increased the Navy's warship fleet by 11%, concentrating mostly on aircraft carriers, submarines, and cruisers. By the time of the latter Acts the restrictions imposed by international naval agreements were no longer relevant.

[5] Of course, part of the acceptance of the need to facilitate such transit was motivated by cost. The Congress between the wars was very sparing with funds for the armed forces, although the Navy did slightly better than the Army. This frugality is reflected in the fact that the Canal's defences were largely unimproved from just after World War 1 until the growing threat of the late 1930s made improvement seem essential.

supporting facilities in the US-administered Canal Zone improved, but additional bases were sought and obtained through the rest of Panama (a total of 134 in all), with others established in neighbouring countries, notably on the distant Galapagos Islands (an Ecuadorian possession).[6]

In Panama, the US faced initial difficulties in negotiating the necessary agreement for its extra sites, being faced by a newly-elected President, whose platform had been both nationalist and anti-American. After he was removed (not by the US but by the National Police[7]), matters progressed more smoothly. This delayed the formal coming into force of the bipartite agreement in mid-1943.

By the end of the war in August 1945, the big guns of the coastal artillery had been deactivated[8], there was a surplus of fighter aircraft, and the strength of the Panama Canal Department, the Army's command in Panama, considerably reduced from its peak of 68,000 of November 1942.

In a sense, there was more drama in Panama after the end of wartime hostilities than there had been for the latter months of the war. This concerned the status of the additional defence bases the US military had obtained in the Republic of Panama. The agreement had been to hand them back to Panama a year after the end of the war – although there was disagreement over what that meant. The US Army, however, wished to retain at some of the sites, particularly the large and useful army and air base at Rio Hato. The Panamanian Government initially agreed to the retention by the US of some bases, only for its foreign minister to resign in protest and a popular protest be triggered. There had been growing nationalist sentiment since a coup in 1931 that had overthrown (albeit, as it transpired, for only a few years) government by the elite families of the country.

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[6] The irony being that, by the time the improved defences were nearing completion, the threat was considered to have reduced so that a gradual rundown of the defences (including capping or reducing troop levels and mothballing gun positions) began – a second irony being that this coincided with a definite plan by Japan to use aircraft-carrying submarines to launch the sort of attack that had been feared.

[7] A foretaste of postwar, where the National Police leadership, and latterly the National Guard (as it became in the 1950s), would increasingly run the country, culminating in a military dictatorship that would only end with the US invasion in December 1989.

[8] The entire Coastal Artillery Corps would be disbanded in 1950.

In the end, under direct physical threat from a mob besieging the building, the National Assembly rejected the draft agreement and the bases were swiftly vacated; so that, by early 1948, there were no US military bases outside the Canal Zone.[9]

The events of World War 2 had been something of an anti-climax considering the fears of the pre-war and early war years. For a few months in 1942 the German U-boats had seemed to pose a potent threat – though these were better used to target the trans-Caribbean oil and bauxite trade. Considerable effort and huge sums had been expended on protection of the Canal. It had served an important purpose, with thousands of ships using the Canal, with men, warships and materials moving in both directions. It was aided in its functions by the trans-isthmus railway[10] and an oil pipeline.[11]

By 1945, aside from the logistic operations of the Canal Zone, the chief role of the bases in Panama was in training. Not only for aircrew and soldiers, but also for warships, submarines, and PT boats on their way to the war in the Pacific. The alert status had been reduced from its wartime peaks, and the patrols over the Atlantic and Pacific approaches to the Canal reduced or ended.

Postwar defences never reached the levels seen during World War 2, despite a temporary strengthening during the Korean War from 1950. US forces would remain until the end of 1999, with training (of US troops and those of Latin American allies) – including at the notorious School of the Americas – an important function. It also served as a useful base for operations in Latin America and the Caribbean. However, there were increasingly fractious relations with the government and people of Panama from the late 1950s, culminating in the incident in 1964 where several students and US servicemen died in a confrontation.[12] Things looked to have improved when Presidents Carter and Torrijos signed the treaties providing

[9] The US would eventually get back Rio Hato, under a 1955 Treaty, only to lose it again in 1970 when, in the face of deteriorating relations, the Panamanian Government refused to renew the lease.
[10] It was later calculated that, in theory, the railway could have dealt with most, if not all, the cargo moved using the Canal – albeit with added cost and delay.
[11] Which meant tankers did not have to make a transit from the Atlantic side; other tankers collecting the oil from a terminal on the Pacific end for onward delivery.
[12] And commemorated annually in Panama with a solemn public holiday.

for the ending of the Canal Zone and the handover of the Canal to Panama.[13] However, Torrijos would be replaced in due course by Manuel Noriega, and a worsening of the relationship, culminating in the 1989 invasion, which at least saw the restoration of democracy.

Now the Canal Zone is but a memory, chiefly recalled by the continuing presence of buildings of the military and Canal administration, such as in the ordered streets of the Balboa district of Panama City, which was once the "capital" of the Canal Zone. Here and there you can see occasional reminders of the defences but, unlike in Europe, there appears to be no desire to either retain or remember these or their purposes. It is almost as if Panamanians had forgotten (or wanted to forget) the near century of US presence. Perhaps if there had been some attack on the Canal, seen as having been defeated by the US and Panama[14], then it might be different – but perhaps there just seems no reason to want to remember.

ONCE THE CANAL EXISTED IT HAD TO BE DEFENDED

The 1903 Hay-Buana-Varilla Treaty with Panama had given the US the implicit (but not explicit) right to fortify (or protect) the Canal Zone. However, the original Isthmian Canal Commission[15], responsible during the period of construction of the Canal, had believed that the Canal to be essentially indefensible, since "*a small party of resolute men, armed with a few sticks of dynamite, could temporarily disable it without great difficulty*".[16]

It was also conjected that if an enemy fleet was to dominate the Caribbean, then access to the Canal would be cut off and it would be shown as being worthless. Therefore, to adequately defend the Canal and its approaches the Navy would require even more ships.

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[13] One should note that, as with the 1936 Treaty that aimed to improve US-Panama relations, these later treaties only just passed in the US Senate.

[14] In fact, Panama played no role at all in the defence of the Canal, nor indeed the country, having no army or navy. Its army had been disarmed and disbanded in 1904, and its only armed force was the National Police.

[15] Established in February 1904 and given control of the Canal Zone, stretching roughly five miles either side of the planned canal route.

[16] *Security and Defense of the Panama Canal 1903-2000* by Charles Morris (Panama Canal Commission)https://original-ufdc.uflib.ufl.edu/AA00047733/00001/1

One option would have been to make the waterway neutral (as, in effect, was to be the situation after the US handed over control of the Canal in 1999), but the Taft Administration (1909-13) rejected this idea.

In 1905, President Roosevelt directed the establishment of what became the National Defense Board (aka the Taft Board) to review and revise the findings of the 1886 report of the Endicott Board, which had introduced major changes to coastal defences in the US, and incorporate subsequent developments. The resulting 1906 report included a recommendation that the Canal Zone be added to the list of locations protected by such defences.

With construction of the Canal underway, in 1909, a Joint Army-Navy Fortification Board was established to draw up plans for the defence of the Canal. The eventual plan, which would remain essentially the same until the outbreak of World War 2 was for strong defences at either end of the Canal (with coastal artillery and mines in the entrances[17]), guarding of the locks and other vital installations, and a mobile force with light artillery to provide close-in defence and to tackle any landing of enemy troops. The only (understandable at the time) thing that was missing in the original plans was the need for defences against air attack.

In 1911, funds were allotted to begin the fortifications, and by 1915 some $15 million had been spent, and, by 18 September 1917, the military reserves of Fort Grant, Fort Amador, Fort Sherman, Fort Randolph, and Fort Lesseps had all been officially established.[18] Other establishments, including the naval base and air station at Coco Solo, and Fort Clayton, close to the Miraflores Locks, were to follow.

During the construction of the Canal, a huge amount of waste material (particularly from the Culebra Cut[19]) was used the create a breakwater that eventually linked the mainland to one

[17] Planned were 15 groups of 19 controlled buoyant mines just outside Limón Bay at the Atlantic end of the Canal; and 16 groups of 19 mines generally to the south and west of Flamenco Island at the other end.
[18] https://www.laestrella.com.pa/nacional/220319/fortaleza-mercado-planes-defensa-antigua
[19] The Culebra Cut (called the Gaillard Cut from 1915 to 2000 after the US officer who had led the excavation, and who died a month after the breakthrough there in 1913), is an artificial valley that cuts through the Continental Divide and it was one of the great engineering feats of its time. Culebra is the name for the

of the small offshore islands, Naos, with work being completed in 1912. This became an integral part of the Pacific defences of the Canal, being was named Fort Amador[20] and Fort Grant[21]. In due course, the causeway was extended from Naos to further small islets, ending at Flamenco.[22]

This causeway and its islands grew to cover over 344 acres (139.2 hectares) with not only artillery[23] (chiefly in Fort Grant, which officially also encompassed the unconnected islands, the largest of which was Taboga, around 12 miles away in Panama Bay), but other facilities, including a large fuel tank farm. On Flamenco alone, there were no less than four batteries.[24]

The initial plan was for heavy calibre guns to engage any attacking naval force at distance, up to 13-14 miles (21 -22.5 km) initially although the largest guns later supplied would have a range of 25-27 miles (40-44 km) or more. In 1910, the Joint Board recommended fortifications being equipped with 10 14-inch guns, 12 6-inch guns and 28 12-inch mortars, at an estimated cost of $14.1 million.[25] Multiple sites equipped with 60-inch searchlights were for use in the case of a night attack. The approaches to either end of the Canal would also be safeguarded by naval patrols.

Congressional approval for the Board's plans was received on 9 January 1911, and the final cost was $12.4 million.

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mountain ridge it cuts through and was also originally applied to the cut itself. After the canal handover to Panama in 1999, the name was changed back to Culebra (*Corte Culebra* in Spanish).

[20] Named for the first President of Panama, Manuel Amador Guerrero.

[21] Named as US President Grant had ended his transit of the isthmus there in 1852.

[22] Later an important radar site, there remains a radar station on Flamenco, adjacent to a marina, cruise liner terminal, shops, and restaurants.

[23] As noted elsewhere, such artillery gradually fell out of use; the Fort Amador batteries being disused (and buried) from 1943.

[24] Some remnants of which one can still find today, although derelict and overgrown: https://www.panorama2go.com/en/military-fortifications-of-the-isthmus-of-panama/

[25] *Security and Defense of the Panama Canal 1903-2000* by Charles Morris (Panama Canal Commission)https://original-ufdc.uflib.ufl.edu/AA00047733/00001/1

With the defences under construction, in 1916, a landslide closed the Canal and Congress resolved to create a two-ocean fleet, something that would have made the defence role of the Canal largely irrelevant. However, Congress did not follow through on the decision.

With the US only entering World War 1 in April 1917, by which time the once-great German Navy had been chased from the high seas, there appeared little risk from enemy attack. However, there were reports in May 1917 that the Germans had plans to sink transiting ships loaded with cement in the Canal.[26]

In 1925, it was estimated that the total cost of defence-related construction in the Canal Zone had cost $157.9 million.[27]

BETWEEN THE WARS

Shortly after World War 1, surplus 75 mm and 155 mm guns were supplied, intended for beach defence and to provide close-in harbour defence with enfilade fire on landing craft to protect major harbour defence installations. Then, in the 1920s, additional long-range 12-inch guns were added to Fort Sherman at the Atlantic end of the Canal.[28] At the end of the decade another four 16-inch guns were added to the defences at the Pacific end. These were newer guns of larger calibre[29] and of considerably greater range, over 25 miles (45,000 yards or 40 km). In addition, in 1928, two 14-inch railway guns arrived in the Canal Zone, these too had a greater range than earlier guns of the same calibre – double at 27 miles (48,000 yards or 43 km).[30]

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[26] *The Panama Canal in Peace and War* by Norman J Padelford, (New York: Macmillan, 1943).
[27] *What Roosevelt Took: The Economic Impact of the Panama Canal, 1903-37* by Noel Maurer & Carlos Yu: https://www.hbs.edu/ris/Publication%20Files/06-041.pdf
[28] It was felt that the sheer distance of the Pacific end of the Canal from any potential hostile actor provided a degree of safety, so that the Atlantic end was most at risk.
[29] The largest guns recommended by the Board had been of 14-inch calibre.
[30] Due to the improvements in naval armour, there were plans for further 16-inch guns to be placed at either end of the Canal, and eight 16-inch mortars on the island of Taboga in Panama Bay, but this project would be abandoned.

However, after these additions, between 1929 and 1939 the shortage of both funds and personnel meant that many of the big guns were placed in caretaker status and mothballed.[31]

The US policy of isolation and non-involvement in foreign entanglements allowed Congress to keep funding for US forces at a minimum. As a result, in 1922, the strength of the regular Army was limited to just 12,000 commissioned officers and 125,000 enlisted men; and it would remain at this level until 1936. In theory, a large and well-trained force of National Guard, together with reserve divisions would be available to meet needs for training and expansion for any future war. However, this plan faced the refusal of Congress and successive administrations to provide the resources to carry it into practice.

International diplomatic developments allowed politicians to justify further cutbacks. US naval expansion was restricted by agreements made in the Washington Naval Conference 1921-22 and the Kellogg–Briand Pact of 1928, with the latter having outlawed the use of war as a means of policy, giving the US Government further justification for limiting funding of its armed forces. Indeed, until the mid-1930s, only the Navy increased in size, and then only within the terms of international agreements – although the US never built to the naval limits permitted in the Washington treaties.

As early as 1923, the War Department had recognised the inadequacy of harbour defences, and determined that either a larger naval fleet or a much larger number of aircraft (even by then the usefulness of aircraft had become increasingly apparent) would provide better protection. However, it was felt that the cheapest option was continued reliance on guns and submarine mines and, thus, the General Staff concluded that permanent (but improved) seacoast fortifications were still of use.

By the 1930s, with the introduction of aircraft carriers and long-range bombers (though at the time these would still likely have to use nearby countries as a launching pad), fears about

[31] *Security and Defense of the Panama Canal 1903-2000* by Charles Morris (Panama Canal Commission)https://original-ufdc.uflib.ufl.edu/AA00047733/00001/1

air attack on the Canal increased[32] – involving attacks which could originate hundreds of miles beyond the range of coastal artillery defences.[33]

In the 20 years prior to 1940, the overseas possessions of the US retained small garrisons, and relied heavily upon local resource and, inevitably, the Depression of the 1930s also had an effect, forcing the Army to make do with the large, but increasingly obsolescent, stockpile of weapons left over from World War 1.[34] The big guns of the Canal forts being of such vintage.

Being seen as the most important element of national defence, and the fact that shipbuilding would also boost employment and help stimulate the economy, meant that the National Industrial Recovery Act 1934, part of the New Deal of the incoming Roosevelt administration, saw the Navy Department provided with $237 million for warship construction.[35]

The Navy received more funds following the Vinson–Trammel Act of 1934, allowing for the replacement of obsolete vessels, but still staying within the limits of the Washington naval agreement.

However, the armed forces' budget was only increased from 1935, as it became apparent that what existed might not be sufficient to defend the country and its possessions. Then, in the late 1930s, as the international situation deteriorated, substantial funding began to become available for both the Navy and the Army[36], with amounts becoming measured in billions of dollars, rather than hundreds of millions.

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[32] Hence the US concern about increasing German involvement in Brazil, in particular, which would continue into World War 2, when the US was keen to secure the east of Brazil around Natal.

[33] *Coco Solo Submarines: Protecting the Panama Canal, 1941–1942* by Michael Sturma (*The Journal of Military History* 81 (October 2017).

[34] *Military Intelligence* by John Patrick Finnegan (Center of Military History, US Army Washington DC, 1998).

[35] The Navy ordered 20 destroyers, four submarines, four light cruisers and two aircraft carriers, the expenditure justified on grounds of national defence and job creation.

[36] By December 1941, the Army, thanks to the introduction of peacetime conscription and the ample funds, had reached a strength of 1,640,000, consisting of 29 partly-equipped infantry divisions, five new armoured divisions, two cavalry divisions, and upwards of 200 incomplete air squadrons. However, only 165,000 of the troops were deployed outside the Continental US: *Logistics in World War ll: Final Report of the Army Service Forces* - A Report to the Under Secretary of War and the Chief of Staff by the Director of the Service, Supply,

The US Government also planned to expand and improve fortifications in the Pacific and the Caribbean (including in the Canal Zone).[37] The Canal Zone and Hawaii received more and better equipment than most overseas bases - even the Philippines did not receive more modern materiel until July 1941, and the first B-17 Flying Fortresses late in August.[38]

Before the Pearl Harbor attack the US considered the Panama Canal a more likely target for a Japanese attack than Hawaii, despite the far greater distance involved. Thus, by December 1941, Panama was better protected (although not adequately) by radar than was Pearl Harbor.[39] As early as the summer manoeuvres in 1929 the superiority of a carrier attack force over land-based defences had been clearly demonstrated.[40]

An important aspect of defence in the Canal Zone was use of the Mobile Force, comprising light infantry and artillery (and later light tanks). This force employed tactics promoted in Brigadier General William G Haan's 1920 proposal for a flexible mobile defence-in-depth doctrine (rather than reliance on fixed defences) which still seems modern in overall concept.[41]

In the 1930s, the US Army experimented with the movement by air of reinforcements to the Canal Zone in an emergency. In 1931, a field artillery battery was transported to Panama for manoeuvres, and in 1933 a full division of soldiers were deployed from the Continental US by air for what was termed "hemispheric defense".[42] However, the US Army Air Corps

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and Procurement Division, War Department General Staff (Center of Military History US Army, Washington DC , 1993): https://history.army.mil/html/books/070/70-29/CMH_Pub_70-29.pdf

[37] https://www.mslucohistory.com/uploads/1/0/9/4/109471507/hemispheric_reactions_chapter.pdf

[38] *Logistics in World War ll: Final Report of the Army Service Forces* - A Report to the Under Secretary of War and the Chief of Staff by the Director of the Service, Supply, and Procurement Division, War Department General Staff (Center of Military History US Army, Washington DC , 1993): https://history.army.mil/html/books/070/70-29/CMH_Pub_70-29.pdf

[39] *Coco Solo Submarines: Protecting the Panama Canal, 1941–1942* by Michael Sturma (*The Journal of Military History* 81 (October 2017).

[40] Despite the defenders knowing the day of the planned mock attack and having as many aircraft as the attacking fleet, the "enemy" was able to come within 150 miles of the Pacific end of the Canal before launching bombers in the predawn darkness

[41] Given the small scale of the Canal Zone, this concept seemed eminently suitable – unlike in the Philippines, where the much larger number of potential landing areas, and shortage of resources, made it infeasible.

[42] https://www.airforcemag.com/article/0299carriers/

(USAAC) would have lacked to resources to carry out such an action in a real emergency, particularly if a more widespread conflict required its limited transport capability elsewhere.

The airline industry in the US did carry out studies showing how, at least in theory, the Canal Zone could be reinforced by air (albeit at the cost of effectively closing down all other operations); and there was from 1936 a plan for the mobilisation of the airlines in case of war. The plan was kept updated and was to provide a basis for the wartime use of the civil aviation resources of the US.[43] The plan involved the widespread impressment into USAAC and Navy service of civilian types, though in Panama itself this would amount to only a handful of small or unsuitable larger types. The industry plans as revised in 1941, estimated that airlines could move up to 6,700 men per day for a limited period from bases in the US to points as far away as the Panama Canal. However, as explained, this would have required stopping all scheduled commercial operations, and the use of all of the airlines' aircraft[44].[45]

As early as 1921, US war plans began to see Japan as the most likely enemy in the event of war, with the possibility of Japanese attacks on Hawaii, the Panama Canal and even the US West Coast, although plans did not envisage Japan being able to seize any of these places. This was one of the bases of War Plan Orange, one of several colour-coded war plans prepared and revised on several occasions between 1924 and 1938.[46] During the 1930s, of course, tensions with an increasingly militaristic and aggressive Japan intensified.

In 1939, the colour-coded war plans were replaced with a new set of "Rainbow" plans, also anticipating possible scenarios. The Rainbow Plans all envisaged the same general situation, involving Germany, Italy, and Japan as the enemies, and all had the security of the Canal as among the primary concerns.

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[43] https://www.ibiblio.org/hyperwar/AAF/I/AAF-I-9.html

[44] *A History of the Civil Reserve Air Fleet* by Theodore Joseph Crackel (Air Force History & Museums Program), 1998: https://media.defense.gov/2013/Sep/16/2001329866/-1/-1/0/AFD-130916-006.pdf

[45] In 1941, the USAAC and US Navy impressed 200 of the 360 airliners in service in the US, as well as most of the employees: https://simpleflying.com/pan-ams-role-in-world-war-ii/

[46] In fact, although War Plan Orange was seen as one plan, the Army and Navy had their own separate plans, but based on the joint one. In addition, the forces in the overseas bases, such as in the Canal Zone, had their own joint and Army and Navy plans.

As it transpired, the limited holding war in the Pacific, envisaged in Rainbow 5 was abandoned in favour of an aggressive version of the former War Plan Orange during World War 2. This was because US forces were able to take to the offensive against Japan much earlier than had been anticipated, although Rainbow 5 officially remained in effect until it was officially rescinded in March 1946.[47]

WORLD WAR 2

During the 1930s, War Department planning saw Alaska, Hawaii, and Panama (often referred to as the "strategic triangle") as the main line of defence for US forces,[48] and the Army remained focused on defending a zone encompassing that triangle.[49]

As they evolved, the defences of the Canal during the war can most easily be divided into –

- defence from attack from the sea – from shelling, torpedo attack on the lock gates or use of blockships;
- defence from air attack – from seaborne aircraft or aircraft based in neighbouring states (long-range bombing from hostile Axis countries being impossible due to the distances involved);
- defence from ground attack - from forces landed by sea (or possibly by air) in the Canal Zone or the Republic;
- defence against sabotage – by saboteurs attacking vulnerable assets (such as lock gates, power stations, and the dams) or by blocking the locks with sunken vessels; and
- combating German U-boats in the Caribbean and the approaches to the Canal – neither German nor Japanese submarines were able to threaten the Pacific approaches, given the vast distances involved.

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[47] Rainbow 5 envisaged the US, Britain and France versus Germany, Italy, and Japan; and a strategic defensive being maintained in the Pacific until success against the European Axis powers permitted transfer of major forces to the Pacific for an offensive against Japan.
The Official History of the Washington National Guard: Volume 6: Washington National Guard in World War II (Headquarters Military Department, State of Washington Office of the Adjutant General, Camp Murray, Tacoma 33, Washington State): https://mil.wa.gov/asset/5ba41fe3eab43

[48] https://history.army.mil/html/books/010/10-6/CMH_Pub_10-6.pdf

[49] *US Global Defense Posture, 1783–2011* by Stacie L Pettyjohn (RAND Corporation, 2012): https://www.jstor.org/stable/10.7249/j.ctt24hrv8.15

Pre-war US planning for defence of the harbour was intended to have three purposes –

- to protect the defended area against invasion and capture;
- to protect the area from naval bombardment, and shipping from submarine or surface torpedo attack; and
- to cover the seaward approaches sufficiently far out – using the coastal artillery and Army bombers - to enable the Navy to emerge and meet an attack.

The defence roles of the three authorities present in the Canal Zone were summarised in a joint Army/Navy plan drawn up in 1935, these were that –

- the Army (including its Air Corps) was to defend the Canal from sabotage and hostile attacks;
- the Navy was to patrol the coastal zone and control and protect shipping therein; and
- the Panama Canal Administration was to "*protect, operate and maintain the Canal, its adjuncts, and appurtenances to ensure continuous service*" at the required levels.[50]

The principles above were reflected in new strategies for protection of the Canal developed in the 1930s, and which involved a three-layer defensive arrangement –

1. an extended defensive line to intercept ships and aircraft before they reached and threatened the Canal;
2. a "close-in line of resistance" to prevent landings on the coast; and
3. local defences and delaying positions for a final defensive action should the first two layers be breached.[51]

The Panama Canal Department of the Army (the equivalent of a command)[52] was responsible for the defence of the Canal Zone - including land areas, coastal defences, harbour, and air and sea defences within medium bomber range. It was also responsible for the laying, maintaining, and clearing of harbour defence sea mines that were to be placed at

[50] https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=3672&context=etd
[51] https://apps.dtic.mil/dtic/tr/fulltext/u2/a388262.pdf
[52] Created as a separate command of the US Army on 26 June 1917.

the Canal entrances in event of a war. The Army also was to defend against landings at either end of the Canal, coordinating with forces of the US Navy.

There were two Harbor Defense Commands, part of the Coast Artillery Corps[53], one based on Cristobal and the other on Balboa. These controlled the forts, minefields and other coastal defences of harbours and rivers and, while some of the similar commands in the Continental US were disarmed and disestablished between the wars, those in the Canal Zone were retained, though somewhat downgraded. It was only in 1940 that funds made available to install or improve one vital type of harbour defence – nets and booms that would bar entry to surface vessels and submarines, and protect against torpedo attack.[54]

In 1939, a Colonel Clark of the US Army War Plans Division wrote an analysis of the possible consequences of an Anglo-French defeat in the European war. This warned that the US could face efforts by Germany to acquire British or French possessions in the New World, something that could threaten the Canal and/or its approaches. He also foresaw the possibility of a German attempt to block the Panama Canal by sabotage or air attack[55] while the bulk of the US Fleet was in the Pacific, but he considered this an unlikely development unless Japan acted in concert with Germany in launching an attack. Despite the lack of aircraft carriers, it was thought Germany had a large bomber force and could move from African bases to the Natal area of eastern Brazil (leading to a distinct US interest in that region, and keeping Brazil onside).[56]

It is noticeable that, despite the obvious importance of the Canal to the US Navy, the naval defences were regarded as quite limited in 1939. As explained, the Navy largely relied on

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[53] Formed in 1925 (succeeding earlier predecessor bodies), like the Coast Artillery Corps itself it would be disbanded in 1950.

[54] In 1939, there were no US designs, no modern net material, no written literature on the subject and few trained personnel. The net and boom programme saw engineers relying heavily on British designs, adapted to cater for American production practices and standards: https://www.navycthistory.com/NSGStationsHistory.txt

[55] At the start of the war Japan had eight aircraft carriers, while Germany had a single example under construction (it was never completed).

[56] *United States Army in World War II: The Western Hemisphere - The Framework of Hemisphere Defense* by Stetson Conn and Byron Fairchild: http://tothosewhoserved.org/usa/wh/usawh01/

the Army for protection of the Canal, with no large surface ships and only a handful of smaller vessels, including submarines, based there.[57]

Nevertheless, the expansion program for the Navy's facilities serves to illustrate the rapid growth in the Canal Zone defences. For example, ammunition storage for the Navy was greatly increased, with an initial programme begun in November 1940 and, after war was declared in December 1941, a further increase was ordered. Altogether, 40 storage structures of various types, ranging from concrete arch-type underground magazines for high explosives to frame storehouses, were built. The West Bank Ammunition Depot, commissioned as recently as September 1937, saw its capacity increase fourfold during 1940-43, with a total of 47 ammunition magazines being built, of which 34 were concrete arch-type high-explosive magazines. These were linked by a system of access roads, and the newly developed area enclosed by 7 miles (11.3 km) of wire fencing. In addition, sentry stations, telephone lines, quarters for assigned personnel, and a temporary mine-anchor storage building were included in the development.[58]

Even after the passing of the Two-Ocean Act of 1940, the ability of the US fleet to move between the Atlantic and Pacific, and *vice versa*, remained for some time a fundamental facet of the defence strategy for the Continental US; meaning that defence of the Canal continued to be regarded by the US Army as second only to protection of Continental US itself.

All in all, it is perhaps surprising that the Canal Zone was considered to possibly have the strongest defences of the three US outposts (the Canal, Hawaii and Alaska).[59] Though elaborate, the Canal defences were, by the late 1930s, outmoded - most having been designed and built in the days before the aeroplane became an important weapon.[60]

[57] https://history.army.mil/html/books/010/10-6/CMH_Pub_10-6.pdf
[58] https://www.ibiblio.org/hyperwar/USN/Building_Bases/bases-18.html
[59] https://history.army.mil/html/books/010/10-6/CMH_Pub_10-6.pdf
[60] https://history.army.mil/html/books/010/10-6/CMH_Pub_10-6.pdf

As far as air forces, both to provide reconnaissance and air defence, despite improvements in the capabilities of aircraft, only in 1929 did the US Congress grant the necessary appropriation to construct a badly needed airfield at the Pacific end of the Canal – the only available airfield until then being France Field near Colón. The resulting Albrook Field was constructed in 1930[61], but thereafter, until the emergency funding came along in the run-up to World War 2, virtually nothing was spent to improve the aviation capabilities of the Air Corps or the Navy.[62]

It is notable that US defence plans made only marginal reference to the Panamanians. Panama had possessed no army since 1904[63] and its police force was not taken seriously by the US as a fighting unit. A US Army assessment in 1942 judged that the men of the National Police had little confidence in their officers and that "*if a battle were to turn against them, the majority would run*…". Recommendations for their equipment showed that the US Army still saw them only as an internal security force, and that there was no suggestion that they should be trained to participate in Canal defence alongside US troops[64].[65]

The increase in commercial aviation in Latin America during the 1920s and 1930s, much of it involving German or Italian personnel or interest, gave rise to the threat of potential nearby airstrips being used to mount an attack against the Canal.[66] This was seen as a particular threat given the German presence in neighbouring Colombia, where the main airline was

[61] See the Chapter on air forces for more information on Albrook Field.

[62] In 1939, the US Congress appropriated $50 million for improvements to defences, including the upgrading of the main runway at Albrook Field to accommodate newer, heavier bombers, the first of which began deploying in June 1939.

[63] In 1903, the Republic's first President declared the commander of the National Army a threat to the country and suggested to the US legation that Panama would be better off if it disbanded its army – this being seen as a ruse to get the US to disarm the army, and the army was fully disbanded. It was agreed with the US that its troops would defend the country instead: *We Answer Only to God: Politics and the Military in Panama 1903-1947* by Thomas L Pearcy (University of New Mexico Press, 1968).

[64] *Wasting Asset: The U.S. Re-Assessment of the Panama Canal, 1945-1949* by John Major (Journal of Strategic Studies), 2008.

[65] At Rio Hato, from about November 1943, road blocks of an asphalt taxiway connection across the National (by now InterAmerican) Highway, were manned by members of the *Policia Nacional* of Panama. It is said that this was one of the few Panamanian contributions of armed personnel to the war effort, although the USAAF paid their $60 per month salaries.

[66] This was not an unrealistic threat as, for example, at the start of the war the President of the Dominican Republic, for example, admired Hitler and similar views were held by the dictators of Guatemala and El Salvador. Colombia only declared war on the Axis powers in November 1943 (though having ceased diplomatic relations following Pearl Harbor), following U-boat attacks on Colombian shipping. In December 1941, around 4,000 Germans lived in Colombia, with internment being, reluctantly, introduced.

German-owned. This fear was made the greater by the realisation that the air defences of the Canal Zone were considered inadequate, and remained so into the middle of the war[67], despite efforts – including two large supplies of more modern fighter aircraft, and the installation of radar.[68]

There were also concerns that difficulties in the relationship between the US and Panamanian governments could hamper forces in the Canal Zone from moving out of the Zone, and into the territory of Panama, to take up defensive positions or occupy new installations. Nationalist and anti-American sentiment had grown in the 1930s, following the 1931 coup, and was reflected in the election of President Arias Madrid in 1940, on a decidedly anti-American platform.

The vulnerability of the Canal passages and its supporting equipment to sabotage was a major cause for concern during the late 1930s and into the early years of the war. This would lead to armed guards being placed on ships in transit from 1939 (and Japanese vessels barred altogether), as well as increased measures to guard installations.[69]

A 1939 report by the Commanding General identified the five types of potential sabotage as follows –

- ramming the lock gates with a vessel;
- sinking a vessel in the locks;
- dropping timed bombs overboard;
- dropping explosives overboard; and/or
- sinking a vessel in the main channel.

[67] In 1942, the Commanding General in the Canal Zone wrote to the head of the US Army Air Force describing the existing air defences as "worth little" and the communications system as "lousy".

[68] https://www.ibiblio.org/hyperwar/USA/USA-WH-Guard/USA-WH-Guard-12.html

[69] There were not even fences around the Canal's locks until 1927 and, except during World War 1, responsibility for providing a guard for the locks etc was with the Canal Zone Police – this remaining the case until 1934. In 1934, the Lock Guard was established, with troops to protect Miraflores Locks and its diesel-electric plant, the Pedro Miguel Locks, Gatun Locks, Dam and hydro-electric plant, working alongside the police. A Utility Guard was created to protect other installation. The Mobile Force would take on the role of the Lock Guard from 1940.

There were many other potential methods, of course, but using a ship in transit, using it (or them) as a blockship, ramming lock gates[70], being filled with explosives (or carrying mines[71]), or with a hidden sabotage team, was probably the greatest threat.[72]

One should also remember that at the time, and unlike today, Panama was much less developed, with much more jungle along the Canal route from which surprise assaults against ships in transit could be launched. However, it should also be noted that, to date there has not been a successful sabotage attempt, during wars or otherwise.[73]

As something of a footnote, one of the defence methods considered in preparation for the anticipated war was camouflage or deception. The issue of camouflaging the Canal and its installations and defences had been neglected until, in spring 1941, the Corps of Engineers sent an expert in the subject, a Captain Frederick L Fritsche, to Panama.[74] He considered how to camouflage the waterway and in due course he prepared three options -

- covering the three sets of locks with netting, which was not thought feasible
- building a dummy set of locks in the Chagres River and involving the old French canal cut, which was not seen as being practicable because the river did not present a straight line or follow the contours of the Canal; and
- hiding the waterway under a smokescreen to be supplied by the Army's Chemical Warfare Service.

It would be the third option that was adopted.[75]

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[70] The lock gates have been accidentally rammed on a number of occasions in modern times. In another, and most recent incident, in 2020, a veering ship damaged a railway bridge alongside Gatun Lake, closing the railroad line for several weeks.

[71] After the Libyans mined the Persian Gulf in 1984, US Southern Command had concerns about a similar threat to the Canal.

[72] Interestingly, after the Libyans mined the Persian Gulf in 1984, US Southern Command had concerns about a similar threat to the Canal.

[73] *Security and Defense of the Panama Canal 1903-2000* by Charles Morris, Panama Canal Commission: https://original-ufdc.uflib.ufl.edu/AA00047733/00001/6j

[74] Bear in mind that many of the gun positions, particularly those housing the 12-inch heavy mortars had no protection from air attack, let alone useful camouflage.

[75] *The Corps of Engineers: The War Against Japan* by Karl C Dod (Center of Military History, US Army, Washington DC, 1987).

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Panama City

Republic of Panama

7 November 2023