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17.462 Innovation in Military Organizations
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SUBMARINE WARFARE-PRO & ANTI

US Submarine force just celebrated 100th anniversary a couple of years ago—most successful submarine force in the world.

Revolution and Civil War
Holland and the Finnegan

I am going to focus on:

Two lines --Pro and Anti ---only one successful major pro campaign US v Japan
(but maybe two more UK v Argentina and US v USSR)

Three Battles of Atlantic: WWI WWII WWIII

And four questions to ask about them

More attention on Pro and Anti in WWII

And the unsung but huge and very interesting Third Battle

Questions:

1. What are the keys to a successful ASW campaign? Is the smart Barry theory correct?
2. Why didn't the US learn from British WWI & WWII experience---Is the dumb American Admirals theory correct?
3. Why was the US successful in its pro submarine campaign against the Japanese? Is the dumb Japanese Admirals theory correct?
4. What was the Third Battle of the Atlantic all about? Is the smart Harvey theory correct?
And what about that Dumb American Admiral theory again?

WW I

Innovation / wartime use of submarine in strategic role

Germans start and stop and restart unrestricted submarine warfare---fear provoking US entry, which they eventually do.

UK beginnings of TEST (smart Barry's theory)--- The Thorough application of Science and Technology (TEST) to ongoing tactical problems-- Room 40, ASDIC (Sonar)

Allies lost 4800 ships, 11.1 million tons

British more than half of loss- 7.6 million tons, 15K Merchant Marine, 22K Royal Navy lives.

Germans lost 138 U boats and 6,000 sailors or one third of force total.

WW II

Dumb American Admirals theory

Several variations

1. ITS CONVOYS STUPID Happy Time II (Operation Drumbeat) German submarine sink merchant at will along US Coast after we enter WWII. US Navy doesn't learn from either WWI or British WWII early experience-----didn't convoy, didn't get air patrol up, didn't shut off lights in coast cities. Very widely believed, e.g. Admiral Owen, a submariner himself, uses it in LIFTING FOG OF WAR

- Anti-British

- Don't believe in defense
 - Pacific focused
2. TEST < YOU DUMMY > TEST, Bad equipment---our torpedoes didn't work. Subs in Pacific get killed while Admirals refuse to believe or fix problem, which lasts into mid 1943.
3. MAKE WAY FOR SCIENTISTS. Anti-science, Anti-scientist---US Navy refuses offer of National Research Council to examine British ideas and develop new ones to fight submarines. Scientists have to appeal to FDR to get hearing in 1941. They were called "Johnny -Come- latelies" and told to put on uniforms if they wanted to help.

Cost US Navy main role in developing Atomic Bomb. USN punished by Vannevar Bush –kept out of the Manhattan project

But that led to POLARIS (FBM System)

Answering 1.

No doubt USN didn't trust or like British (who does besides NPR listeners?)

- Royal Navy their historic rival
- Royal Navy slighted USN in WWI
- USN thought British were going to be defeat by Germans

No doubt USN saw Pacific more important theater/need---just lost big chunk of Pacific Fleet. Pacific was US Navy's war.

- Japanese sub were off west Coast--US supply line to Hawaii
- April 1942 Doolittle Raid
- May 1942 Battle of Coral Sea
- June 1942 Battle of Midway
- August 1942 Guadalcanal landing

But what was really going on?

Army AF controlled US ASW patrol aircraft---- AAF would not hand over long range aircraft and help close gap.

Army was responsible for coastal defense----shutting off the lights

Navy did guard high priority cargo ---not one troop ship lost; fast convoys or fast ships protected.

Second Battle of the Atlantic over by Spring 1943. Plenty of escorts, codes broken, air gap closed, 10th Fleet set up, USN gets AF long range aircraft and control of air mission, jeep carriers, kill off U Boat commanders.

BUT WHAT WAS REALLY GOING ON?

The Second Battle was really a British Battle, but we won it for them.

US Navy lost a few ships and less than 2,000 sailors/airmen in the fight against U-boats. US Merchant Marine lost 800 ships and 5800 crew. The British lost 30,000 Merchant Marine crew and nearly 45,000 sailors. Even the Canadians lost more than us. It was the British lifeline, not ours that was at risk!!! We killed a third of U-Boats (mostly by air), but British and Canadians did most of the merchant convoy work.

US covered British Merchantmen losses plus. WE BUILT THE SHIPS (made more than 2500 Liberty ships; 700,000 people working in shipyards; used ships to control British and tendency of British to try to hold on to Empire, change agreed upon priorities or produce what we think they should (we wanted them to build bombers, not transports). (We also claimed SACLANT at end of WWII; USN held up NATO Treaty for this).

Answering 2

Everyone's torpedoes were bad. USN did right thing after WWI ---stopped building submarines for 7 years. Consolidated production at EB. Studied U-Boats. Bought German engines, periscopes. Work on design and doctrine.

Fleets boat good, had endurance for Pacific. Planned to sink merchantmen though said we were going after fleet. Had good torpedoes, but tried to keep them secret and didn't or practiced enough.

Torpedoes had design flaws. Some squadrons adjusted; others didn't because run by guy who developed the torpedoes. Fixed but after struggle. Japanese had good weapons. We eventually had very good weapons. Blew up factory after WWII.

Answering 3

Battle with scientists goes back to WWI. Bush and others didn't think much of naval officers. Fight over radar, independent role, ASW. Navy (NRL) lost bomb as a result. BUT real issue--Bush wanted to be on JCS

Office of Naval Research created after WWII-- Navy becomes scientist's patron.

WHY DID US AMERICANS SUCCEED WHERE GERMANS FAILED? The only major Submarine warfare campaign that was successful.

US sank 1110 merchantmen, about six million tons; 200 warships. We lost 52 submarines (almost all in Pacific) and 5,000 men (1 in 5 highest of any branch --- USMC 1 in 34; MM 1 in 37; USA 1 in 48; USN 1 in 114)

Germans sank 2828 ships, 14.6 million tons. They lost 784 (700 sunk) out 1162 boats (820 in commission). Lost 31K (26K killed; 5 K captured) out 41,000 who served (76%)

We had the Japanese as the enemy. Germans had US, UK, Canada plus Soviets. Germans faced convoys, air-coverage, escort carriers, code breaks, DF, radar, sonar.

Japanese believe in big naval battle theory; did do much escorting--kept DDs close to fleet. Navy did little ASW. Their merchant ships followed very predictable routes.

They didn't get escort carriers until January 1944 (built 4 we sunk 3 on maiden voyage). US had 77 in WWII (UK 43).

Japanese had poor relations among services, little coordination. Each controlled fleet of support ships. Army drafted shipyard workers. Were refused Navy's advice when building own submarines.

We had their codes. Their use of submarines focused on our warships--never attacked our long supply lines after first month or two. They lost 127 out 160 submarines. Lost 75% of their sub crews.

THIRD BATTLE OF ATLANTIC

Amazing achievements

- Victorious submarine forces changes doctrine in three to five years
- Changed platform in ten years --to true (nuclear) submarine
- USN essentially maintains total dominance during Cold War ---our Happy Time last 20years
- Submarine becomes ASW and strategic platform
- We win the Cold War in first decade because of US submarine force.

Owen Cote's Cycle of ASW

- ASW wars end with loser gaining answer but too late
- Type XXI destroys our ASW tactics, Soviets adopt
- Submarine becomes ASW vehicle
- Nuclear submarine is counter
- SOSUS is answer but
- Quiet submarine is counter

But.....

What explains our success? Rosen, Posen or Cote/Sapolsky theories of innovations?

- Long, slow? It is not long and slow
- Civilian intervention? Not visible
- Inter-service? Not relevant. Intra-service. Yes (helos, P-3s, towed arrays) but.....

National Mission

ASW is damage limitation (ABM system that worked). SOSUS

SLBMs creates self-licking Ice Cream cone---the Navy's prayers are answered

Plus it's the opportunity for FIRST STRIKE/BOLT FROM THE BLUE

Combination gives a Trillion or more dollars to US Navy

1. ASW is Damage Limitation
 - We need to kill their missile subs to protect US and bomber force
2. Measure of THREAT is our SLBMs---quiet, accuracy gets better
 - Sub force is our source of intel also
3. Our SLBMs become our opportunity for FIRST STRIKE
US military hates MAD; wants preemption alternative
 - We kill their SLBMs with P-3s and Attack Boats
 - They are blind toward the sea
 - Our SLBMs are accurate
 - Its Russian concrete and US numbers in calculating exchange ratios

BUT THEN THERE IS THE WALKER SPY RING

BUT SOVIETS KNEW!!

John Walker gives away codes – KW-7 Encryption Machine

USS Pueblo

Fleet Broadcast System, keys, war plans---millions and millions of messages

Soviets could launch from pier, surge, and could and did build quieter submarines

DUMB ADMIRAL THEORY AND THE VULNERABILITY OF COMMUNICATION SYSTEMS

Access vs Detection

Macho Men

Not on my watch

Didn't have anyone really informed in charge –importance of counter intelligence.