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LONG ESSAY: OUR WORLD WITH THE TECHNOLOGY AND WAR

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HELLO! WE ARE OSAKA MEISEI HIGH SCHOOL STUDENTS, YUKI INOUE, SOICHIRO SAKUMICHI, YUICHIRO YAMAOKA, HIROKI NAKAMOTO, SHOROKU KYUTOKU AND KISHIN INOUE. WE ALMOST ALL WENT TO HARVARD UNIVERSITY TO STUDY ABROAD. AND WE MADE THIS TEAM WITH THE EXPERT OF THE TECHNOLOGY. (YUKI INOUE). IN THIS ESSAY, WE ARE GOING TO TELL YOU ABOUT I-400 AS AN EXAMPLE OF THE TECHNOLOGY WHICH IS PRODUCED BY THE WAR.

First, let us explain the reasons why we made this essay. Here some individual reasons:

- 1) *"I came to be interested in the war and the peace by a school religion class and wanted to deepen my understanding."* -Hiroki-
- 2) *"I have wanted to study the relationship between War and Peace. Now, Japan has no war, so it is necessary to think about them in this situation and have ownership of them."* -Yuichiro-
- 3) *"I want to examine this program through the opportunity of 75 years after the war, along with the facts created by the war, the positive and negative impacts that it has had on the present, and the possibilities that will lead to the future."* -Shoroku-

I-400 is a submarine that gave very big influence on current technology. We think that the history of I-400 is the right topic for the theme - "The Peace and The War". Most people think the war is bad. The history of the war is wrong. But, please think. In current society, we live with a lot of technology. And many of them were made for the war. Now, we must think the war in a different view. Absolutely, killing other people is wrong. But the war also produced many useful things. The war is not just bad. We should know the truth without any prejudices. Second, we are going to explain the details of I-400.

CHARACTERISTIC OF THE SUBMARINE

A characteristic of the submarines as the weapons is that it is "ultimate stealth weapon". Navigate the water that it is hard to detect and approach to the point-blank range of the enemy, shoot Aggressive weapon. It is very difficult object, but the effect to give an enemy is great for the amount of resources psychologically. In WW1 and WW2, the submarine was used for only commerce destruction and the independent strategy of the anti-surface ship exclusively (The German navy *Wolfsrudeltaktik*^{*1} strategy exception '). Under that times I-400 with the goal of "a direct attack to the enemy mainland" while it looks like it, and singularity appears at the point that is the designed first submarine.

I-400 was planned; aimed for U.S. mainland air raid as having mentioned above at first. Japan received the air raid of the U.S. military plane suddenly in April, 1942. This is Doolittle air raid^{*2}. The nation and the military authorities of the thing which had little damage fell into great confusion. The General Staff Office which keenly realized the importance of the mainland direct attack by this event gave it an order for the design of the submarine that U.S. mainland air raid was possible. Ability to be, and not only to only attack it at random, but also destroyed the facilities of the enemy at the attack of I 17 and I 25 was.

※ 1 Wolfsrudeltaktik

The wolfpack was a mass-attack tactic against convoys used by German U-boats of the Kriegsmarine during the Battle of the Atlantic. Operation group wolf is a strategy to hold by plural submarines (more than three ships). At first a starting submarine predicts a line from the information that has been sent from a spy plane and ambushes you in a prediction sea area and takes the siege battle formation by each warship if I confirm that a transportation fleet invaded the sea area and is a policy to destroy this. By this method, the damage of the submarine decreased, and the number of the sinking increased.

※ 2 Doolittle air raid

Doolittle Raid, also known as the Tokyo Raid (Saturday 18 April 1942), was an air raid by the United States on the Japanese capital Tokyo and other places on Honshu during World War II. It was the first air operation to strike the Japanese archipelago. It demonstrated that the Japanese mainland was vulnerable to American air attack, served as retaliation for the attack on Pearl Harbor, and provided an important boost to American morale. The raid was planned, led by, and named after Lieutenant Colonel James Doolittle of the United States Army Air Forces. This operation uses B-25 Bomber.

THE TECHNOLOGY AND STRUCTURE

"I-400 type" was assigned to the demand of many aspects, but at first must arrive above all. With the cooperation such as a submarine or the refueling warship, I fill up with gas it in a journey, but do not normally cross it this time from the island to the island. I go half round the earth from the Japanese Islands and attack the mainland U.S. and then must come home again. It is no supply too. South America does not take part in war and naturally, Australia allied power side. But you will lose everything when I appear when I supply it suddenly, and it is widely known to the allied powers side. A required cruising range is 33,000 nautical miles. When get over to a kilometer; 61,116km (1 nautical mile = 1,852m). I say because one lap of distance-based earth of the equator is 40,077km that is, "I prepare for one lap of earth and a half submarine which it is possible for by no supply". "I 400 type" changes into structure totally different from the conventional submarine in order to realize the flying range that does not have this step.

A cross section is circular, but this "I 400 type" attaches two cylinders, and it is in the structure that a cross section becomes the glasses type when I cut the normal submarine right in the two. The reason that became the glasses type includes maintenance of the stability with upsizing. Because had to install the large upper part structure including the watertight airplane hangar pipe and conning tower pipe in the upper part of the inner husk, too many I gathered, and, about stability, the normal thing which was heavy in the upper part if cylindrical was unstable. I adopt glasses type and greatly take width to cancel the instability. The hanger pipe was set up to be stuck in the hollow that occurred in the glasses-shaped center, and the conning tower (part equal to the bridge deck) was put on the top. There is the reason that it increases by it of a shape and the fuel burden for cruising range realization for others. Then, "attack" if I arrive mainland of US it is the mainland attack by the air raid this time, you must be able to manage a seaplane.

However, it is a plan in the temporariness when it was remodeled to be able to load an incendiary later, and originally "Type 0 small seaplanes" which flew away from I 25 before are not air raiders. The seaplane that air raid was possible in earnest was necessary if they did an air raid in earnest. The seaplane is "晴嵐". It was the strong seaplane which did not think that, besides, the dive-bombing flew away from a SSV, called the possibility which "晴嵐" was equipped with one 13mm machine gun and could put one 800 bombs or one 45cm torpedo on plane. Omit the explanation of "晴嵐" here, but, as for "I 400 type" and "晴嵐", each other exists for each other, and, as for "I 400 type", "晴嵐" is received by the design that can be equipped with "晴嵐" by "I 400 type"; it was decided that designed it. They were to put this "晴嵐" on "I 400 type" two, but this "晴嵐" is large again and takes pains very much to receive it. Of course, conventional "Type 0 small seaplanes" are small literally and the submarine itself is not size like "I-400 type".

However, both the size and the propeller become large not to mention weight because "晴嵐" is loaded with 800 kg bombs and dive-bombing is the body that it is possible. Because the full length of the propeller was a little less than 4m, it was decided that the diameter of storage pipe became the last-minute size of 4m. However, you had to put the both wings in less than 4m again to conclude it within 4m. They were folded the left and the right flanks on the top and tried the form that a triangle was formed on a body first. However, height put it away more than 4m in this and was not able to receive it.

How should I fold a feather?

This difficult problem tormented designers for a while, but at first what was begun to knit at last turned around a feather 90 degrees and was two steps of structure to fold the after shaft in the rear. It is equipped with a thing larger-scale than a thing put on BB Yamato of "Type 4 style 1 mod 10"(四式一号十〇型) to a catapult for discharge. It was the structure that could be worthy of "晴嵐" to become the weight more than 4t. They barely break through an overflowing difficult problem, and the design of "I 400 type" is finally completed in this way. And, as for "I-400 type," building was started in one a year /1943 month in 1943 in order to pick a surprise attack with the United States.

THE STRATEGY

I-400 was going to strike Panama Canal that was the strategic point of U.S. forces based on the long flying range at first. However, the deployment planned SEIRANN has been behind with completion by an air raid and an earthquake. The meaning that most of American Atlantic fleets moved to the Pacific at that time and attacked Panama Canal is approximately lost; waited. Therefore, the Japanese military drew up "a light strategy" to precede suicide attack strategy "storm strategy" and it which attacked the U.S. task fleet of the

Woolsey anchorage in 1945. I transported a spy plane in the brightly colored cloud warship which was a spy plane for the base truck anchorage of the marine blockaded Japanese military by the United States Armed Forces and succeeded in this with "the light operation" in those days. Storm operation is a suicide attack strategy for the U.S. task fleet of the Woolsey anchorage by Italy 400 Italy 401 where it is a warship of the same type to amount in the end of July 1945. But I really received a retreat order one day before strategy decisive action on August 16 and dumped the haze of the carrier-based plane, and it was done caught by the way home United States Armed Forces to Japan. (Yuki, Soichiro)

In conclusion, we have individual impressions. Let us show:

1) *"I always think that the war is only bad. But my thinking has changed through this project. The technologies are changed by human for only his own benefits. Now, people should think how to use these technologies. They can be used for both of good things and bad things. An example of bad usage is the war. I'm going to continue to learn about the war actively."* -Kishin-

2) *"At first, I'm interested in it, but I have studied history only in my school, so I had a fear that I couldn't catch up with this group. We are studying about I-400 since June. We went the library and lend a book and read and search on the Internet. With this study, I come to know I-400 and the purpose of it. I didn't know that I-400 is the submarine aircraft carrier and biggest in that era. I could touch the fact that all modest technology was introduced to the weapon. After studying abroad to Harvard, I could capture the truth of I-400 and war and peace-that may be because of my touching on statue of John Harvard. To see our history- human history, we can understand that there is new innovation where war occurred. I don't*

think every innovation came from war, but technology that many people think it is great invention is mainly related to war. In my opinion, this is because that many people want to save what they love-such as family, friends, country and so on, so they tried to make efforts to finish the war earlier and keep them safe as soon as possible. I think war is inevitable thing for human never it was. But we can stop by knowing that we are standing on the thing what old people made. My dream is to become an engineer, I was so lucky to be given such a good opportunity to think about war and peace and relationship between technology and them.” -Yuichiro-

Motivation

“I wanted to learn more about war and peace in the school religion class and be interested in it.

This time we tried to capture the war mainly from a technical point of view, but not from a humanitarian point of view. The core is that technology created during the war is still in use today. For example, nuclear power generation that uses the atomic bomb peacefully, GPS, and the Internet. The examples given here are familiar to everyone and are indispensable for human life now. In other words, the technology created to kill people is now being used to help people. There are not many people in the world who know this fact. In fact, I didn't know this fact until I joined this project. With regard to war, most people think that war creates pain, hatred, and sorrow. So, don't repeat. But we want everyone to know that war was not a waste even if it was a human error. This is what I felt from the high level of technical capability that I found out by investigating the I-400 submarine” - Hiroki-

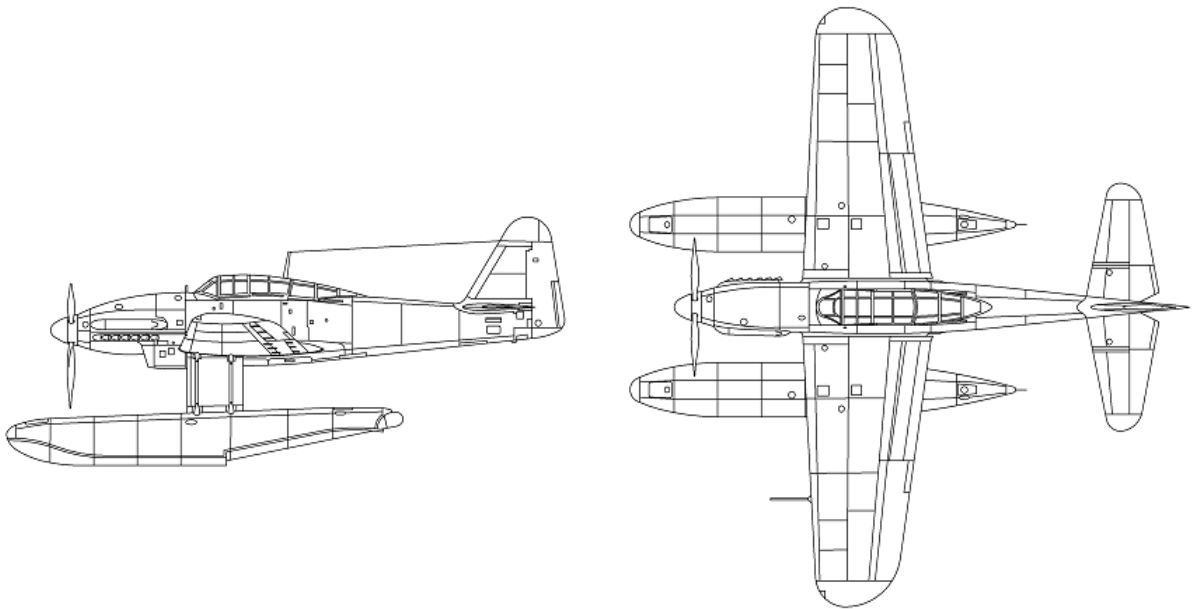
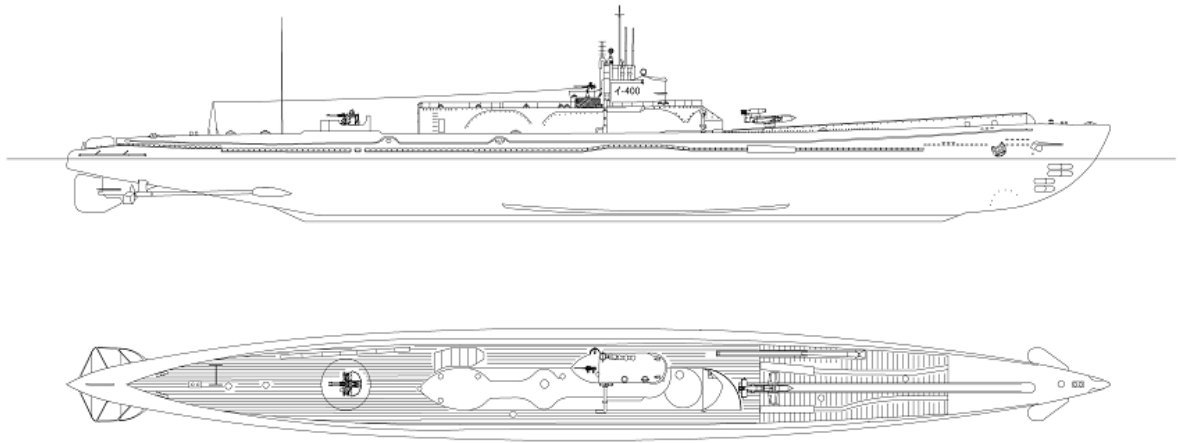
"I was able to grasp the fact of war, its background and its influence on the present day as one thing. I-400 did not show its name in World War II. But when you think that it has led to the Cold War and the advancement of modern submarine technology, it may seem in the distant past, but it turns out to have been connected recently and now. There is no doubt that it will have some influence in the future because it has both good and bad aspects. I am convinced that it is our mission to live today to connect that good side to the development of the whole human race." -Shoroku-

"This submarine made for bombing the mainland of US. In other words, it made for war. War is very cruel because people kill same family human under official order of country. However, technology developed with war. Almost machine that around us is made for war. For example, computer, TV, airplane ... there is no limit. Of Course, I never think war is good occurrence, but I think that all people must not forget Most technology that we use our life advanced due to war. Desire world peace..." -Soishiro-

Thank you for reading!

We have some pictures to help you with your understanding. If you want, you should check them too!

遣独後訓練中 伊-400



伊四百潜水艦 中央部断面図

- 1. 司令塔
- 2. 飛行機格納庫
- 3. 重油タンク
- 4. 電信室
- 5. 補助タンク

