

## **The Redoubtable “Dauntless”**

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On June 4, 1942, Navy Pilot Norman “Dusty” Kleiss took off from his aircraft carrier, the USS Enterprise. He and his backseat radioman/gunner were part of a scouting squadron with thirty-one (31) additional planes. They had all been launched to search for the Japanese fleet approaching the Pacific island of Midway. Cruising at a speed of around 175 miles per hour and at about 15,000 feet, Squadron 6 was looking for the four carriers of the Japanese fleet at the heart of the force preparing to attack. Their names were Akagi [meaning “Red Castle”], Kaga [named after a province in Japan], Hiryu [meaning “Flying Dragon”], and Soryu [“Green Dragon”].

After spotting targets below, Squadron 6 began its attack. Lieutenant j.g. Kleiss and his squadron mates angled their planes at about 70 degrees and reached speeds up to 250 miles per hour.

The ship that Kleiss attacked was the Kaga. The carrier fought back with its anti-aircraft batteries. But with Kleiss and the other US Navy planes coming in at such a steep angle, the gunners had a difficult time tracking or leading their targets. Instead, the Japanese sailors would use “barrage fire.” This

meant that in place of tracking or leading their targets, they would focus their fire at a predetermined location. So, the attacking pilots had to travel through intense spots of heavy fire, but because of their diving speed, they got through it fast (if they managed to get through at all that is).

But Lieutenant Kleiss would have had to keep his mind on other things while diving almost vertically at an enemy ship. He had to monitor his altimeter and bombsight and ignore incoming fire. He had to pick a specific spot on the ship. This task might have been assisted by the red sun painted on the Japanese carriers. He knew that he would typically drop his 1,000 pound bomb at about 2000 to 2500 feet which would make him bottom out at about 900 feet. Since his bomb's exploding fragments went up about 500 feet that would have let him clear the target. If he pressed his attack closer, his margins were smaller, and he risked flying through the immediate aftermath of his own bomb's explosion.

Kleiss's attack was a success as he scored a direct hit on the Kaga's flight deck. Three other navy planes scored direct hits as well. The Kaga was doomed. The attackers still had to make it back to the Enterprise, after leveling off over the ocean, climbing swiftly back into the sky, avoiding Japanese fighters, navigating their way over the ocean, and landing on an aircraft carrier in a battle.

All in a day's work for the United States Navy. Well, not exactly, as their work that day was far from over. Dusty Kleiss and twenty-three other pilots later that same day attacked the Hiryu. Kleiss scored another direct hit. The Hiryu was so badly damaged from this attack, the Japanese had to torpedo it themselves. The Akagi and Soryu were sunk as well in the Battle of Midway.

Many factors contributed to this great victory. From code-breaking, split-second decisions by the commanders, to good old-fashioned luck, for example. But I want to provide more information about the plane Dusty Kleiss was piloting, the only one to deliver significant strikes against the Japanese that day, the SBD-Dauntless Dive Bomber.

"SBD" stands for "Scout Bomber Douglas." "Scout" and "Bomber" are self-explanatory. "Douglas" refers to the Douglas Aircraft Company. According to some of its crew, though, "SBD" really stood for "Slow But Deadly."

The Douglas Aircraft Company was founded by Donald Douglas, Sr. in Santa Monica, California, in 1921. Douglas had been a midshipman at Annapolis before leaving to pursue aeronautical engineering at MIT. In the late 1930's Donald Douglas wrote it was the "hour of destiny for American aviation." The Dauntless would help prove his words true [the company in the 1960's merged with another company and is now known as an entity no one has ever heard of McDonnell Douglas. As an aside my brother worked on the F-16 for that company in the late 1980's].

But what became the “Dauntless” had started as Northrop Aviation Company’s BT-1 and BT-2 dive bombers. These planes entered service with the Navy in 1936 as part of the navy’s move from biplanes to metal monoplanes with retractable landing gear.

As part of Douglas’s vision to help American aviation achieve its destiny, Douglas Aircraft purchased Northrop Corporation’s El Segundo factory in Los Angeles County in 1937. In 1939, Douglas Aircraft sent 57 of its dive bombers from the factory to the Marine Corps to be land-based planes and 81 to the Navy as carrier aircraft. These were the first SBD’s the SBD-1.

These planes, like their predecessors, had two-man crews. The pilot in the front of course and the radioman/gunner in the rear. There were two forward firing .30 caliber machine guns and one .30 caliber rear gun. And one bomb, either 500 or 1,000 pounds.

The next in line, the SBD-2, reached the Navy in early 1941. It had a range of 1225 miles for bombing and 1400 miles for scouting. Armor plating was added for the pilot. Working quickly and always updating Douglas Aircraft had the SBD-3 become available in spring, 1941. This model upgraded the forward firing guns from .30 to .50 caliber, added armor plate for the rear crewman, and gave him another .30 caliber gun, as well. By the end of 1941, twenty [20] of these planes were being made per month. Compare that, though, to peak capacity of the El Segundo plant later at eleven [11] a day.

The Dauntless had a wingspan of 42 feet, a length of 33 feet, and a height of 13 feet, 7 inches. It was also a plane that was rugged, easily maintained, and capable of absorbing punishment.

The Dauntless was going to need those qualities when it faced the most famous Japanese plane of the war, the Mitsubishi Zero. For comparison, the Zero had a wingspan of 40 feet, a length of 29 feet, and a height of 10 feet.

The Zero prototype had been introduced in 1939. It was well-armed with two 20mm cannon and 2 7.7 mm machine guns. It was maneuverable and fast, with a maximum speed of about 331 mph. It did have vulnerabilities. To reduce weight and drag, the Zero was not armor plated. They also did not use self-sealing fuel tanks to preserve fuel capacity and save some weight. I had read about self-sealing fuel tanks and now indulge me for a few sentences as I commit the author's sin of "if I had to learn about it so does the reader or listener."

Self-sealing tanks contain layers of fabric, vulcanized rubber, and untreated rubber. The untreated rubber would absorb fuel from a punctured tank, then swell and seal the hole. But these extra layers reduced capacity and added weight. There's my digression on that topic.

Both the Zero (and the Dauntless) had another problem. In the tropical humidity, their windows would fog, impairing visibility. In the book I am passing around you can see how cramped the cockpits of these planes already

were and visibility does not look that great to my untrained eyes , either. Pilots would solve this problem simply by opening their canopies.

The humidity also caused vapor trails to flow from the plane's wings. Both country's pilots sometimes mistook these for smoke and erroneously reported scoring hits on the enemy.

But who were these pilots and how were they trained? The USN had a reserve pilot program. By the time of Pearl Harbor, half of its aircrew were in the reserves. These pilots were well-trained (so were the Japanese). They were trained in taking off and landing from a carrier, navigating vast distances over the ocean, and Morse code. They also had to be trained to attack targets with precision, and then make it back to the ships. There was gunnery training and aircraft recognition classes too. The initial air recognition system called WEFT- for Wing, Engine, Fuselage, and Tail, though, proved too slow and was replaced with what was called the Ohio State System. This involved a series of slides for a specific plane, used to gain instant recognition.

What the Japanese had at the beginning of the war that the US did not was combat experience. But at a strategic level they trained for a decisive battle so defense was somewhat secondary. This was part of a Japanese naval heritage from its resounding defeat of the Russians at the Battle of Tsushima in 1905 at the command of Admiral Togo. Admiral Nimitz was an admirer Admiral Togo.

In defending from attacks on their ships, the Japanese relied on surface lookouts to spot incoming raids. These would alert the Zeros flying cover by emitting smoke or firing their main batteries. The Zeros, though, had relatively poor radio performance compared to the US (due to lack of coordination between electronics and aircraft manufacturers resulting in lack of systematic installation methods and techniques).

It is probably not a surprise to tell you the first time Dauntlesses and Zeros faced off was on December 7, 1941. 5 Dauntlesses were lost to one Zero. At the Battle of the Coral Sea in May, 1942, 12 Dauntlesses were lost to Zeros and no Zeros to the Dauntless. And at Midway, the numbers were 35 Dauntlesses to 2 Zeros.

The Dauntless later made an important contribution to the victory at Guadalcanal. While infantry there had to take the Japanese airfield, once secured in Allied hands, Dauntlesses were among the aircraft dispensed from there to attack Japanese shipping sent to reinforce their troops. The Dauntless was of course successful in that mission, too. And the planes flew from Henderson Field, named after Dauntless pilot Lofton Henderson, killed at Midway.

These numbers are just about Dauntless on Zero but of course the mission of the Dauntless was not to attack Zeros. It had to defend against them. And how it could is demonstrated by an incident in the career of Japanese Zero ace Saburo Sakai.

Petty Officer 1<sup>st</sup> Class Sakai was on patrol in his Zero in support of Japanese opposition to American amphibious operations including at Guadalcanal. He took off from his base at Rabaul on the island of New Britain, north of Australia to hunt for Allied ships. While near Tulagi, part of the Solomon Islands, east of New Britain, he saw planes below.

He thought they were American F4F Wildcat fighters and that he could attack from above and behind. But when he was about 100 yards away, he realized they were Dauntlesses, eight of them. And what did the Dauntless have that a fighter did not? The rear gunner. Sakai's Zero was raked with fire from the rear .30 caliber guns. Bullet fragments hit his face, chest, elbow, and leg. The rim of his goggles was melted by a tracer round. Somehow, he flew the 550 miles back to his airbase, but was in the hospital for 18 months recuperating, went back on duty, and survived the war.

But all of these machines are eventually surpassed, and the Dauntless was no exception. By 1944 the Dauntless was being replaced with the SB2C Helldiver that had folding wings to better fit on newer carriers, more armament, and a larger payload. But these planes had more complex maintenance needs which would have perhaps made them less effective operating from primitive jungle conditions like on Guadalacanal. And the introduction of fast fighter bombers like the F6F Hellcat and the F4U Corsair contributed to the decline of the need for the Dauntless.



But the Dauntless was the right plane at the right time. Its record in 1942 alone is its testament: sinking or helping to sink six aircraft carriers, one battleship, three cruisers, four destroyers, one submarine, and 14 transports. So, when you think of the Battle of Midway, don't just think of the 4 Japanese carriers destroyed or the immortal names of the US carriers there: Yorktown, Hornet, Enterprise, think of the plane that helped win the battle.

And now, as a bit of an epilogue, I would like to tell you why I chose this topic. I am not a pilot or even an aviation buff. Although, when I disclosed my topic to a friend's twenty-something daughter, she declared it completely "on brand" for me.

I chose this topic because of my late uncle Tom Smith. He was married to my father's sister. By the time I met him he was well into his career as a history professor at Oklahoma. He was a pioneer in the history of science field.

Having been born in 1921, before Jonas Salk's wonder vaccine, my Uncle Tom had contracted polio. This caused a noticeable disability. His left arm was about half the length of his right one. He grew up in Los Angeles and graduated from Hollywood High School. And no, I do not have any idea if he ever had a soda at a malt shop with Lana Turner. But he did enroll at UCLA and rose to the position of editor of the student newspaper. He dropped out, though, so he could assist the war effort. Since his disability prohibited military service, it

just so happened there was an aircraft factory in El Segundo, right there in Los Angeles County.

So, he went to work for Douglas Aircraft. His assignment was writing the technical manuals for the Dauntless. In a written eulogy, he was quoted as saying that the technical writers were given the run of the plant to do their work. Although my uncle was a soft-spoken man, I appreciate how proud I think he was of this service to his country.

So, from pilot, to crew, to mechanics, to sailors, and back across the ocean to the factory worker and the technical writer, let us remember those who contributed to victory by and through the indomitable, redoubtable SBD Dauntless!

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