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The Air Zoo

Exhibit Review

Michael Majerczyk

The Air Zoo is an aviation museum located in Portage, Michigan on the southwest side of the Lower Peninsula. The museum features two campuses, the Main Campus and the East Campus. In all, the Air Zoo has fifty aircraft on display. In the main exhibit hall, one can view perennial favorites such as the SR-71 Blackbird, B-25 Mitchell, P-47 Thunderbolt, and F-14 Tomcat. The lighting in the main exhibit hall is somewhat low but better and more interesting than the lighting at the National Museum of the USAF in Dayton, Ohio. Thus, it is wise to bring along a camera tripod and museum officials do not object to this. The Air Zoo placed colored lights in strategic positions to give interesting color effects to the aircraft on display. For example, when viewed from the right hand side, the SR-71 takes on an interesting gold hue.



Figure 1: SR-71 Blackbird. All photos taken by the author with a tripod mounted Sony A-6000, Minolta MC Rokkor 28 mm lens and remote shutter release.

In addition to jet fighters, the Air Zoo has a considerable collection of bi-planes. Nevertheless, the focus of this review is on World War II aircraft, in particular, the two SBD Dauntless dive-bombers the museum has on display. The core of the Air Zoo's WWII fighter aircraft is located in the Main Campus in its own wing adjacent to a considerable collection of WW II artifacts. Here, in addition to others, visitors can view the FG-1D Corsair, F6F-5 Hellcat, FM-2 Wildcat, and SBD-3 Dauntless. The lighting here is bright and it is clear by the absence of dust, and the near polished finish on the aircraft, that they are well kept. Nevertheless, space in this wing is at a premium and it is difficult, though not impossible, to get a good shot of a few of the exhibits with one's camera. Still, the limited space allows the visitor to get inches from the aircraft. This provides a more personal connection to favorites such as the Corsair and Dauntless.

The East Campus is within walking distance of the Main Campus. The East Campus includes an impressive display of engines. They include the Allison V-1710 that powered such aircraft as the P-40 Warhawk, the Pratt & Whitney R-2800 that powered the Corsair, and the famous Rolls Royce Merlin that powered, amongst others, the Supermarine Spitfire and the P-51 Mustang. The most notable feature of this display is that the engines are not behind glass. That is, the visitor



Figure 2. This image shows a section of the Allison V-1710 valve train. The Allison used a single overhead cam with four valves per cylinder. Ford Motor Company was the prime supplier of the R-2800 and they produced the engine in Dearborn, Michigan. Additionally, Continental Motors Corporation built the Merlin under license from Rolls Royce in Muskegon, Michigan.

can walk right up to the engines as if they were sitting on an engine stand in one's garage.

Because glare is not an issue, one can expect an enhanced viewing experience and photographic opportunities. This is well in contrast to the engines displayed at the Smithsonian National Air and Space Museum. There, engines are enclosed in glass and in some cases, they are cordoned off leaving significant space between the engine and the visitors. At the Air Zoo, one can peer directly into the valve train of the Allison V-1710 free of glass or border ropes.

Additional bi-planes are on display on the East Campus but the most impressive feature is the workshop where the restoration of two planes is underway, a Dauntless dive-bomber and a Wildcat fighter. Recovery teams pulled these two planes—along with the Dauntless displayed on the main campus—from the bottom of Lake Michigan.

To provide training for new pilots during WWII, Lake Michigan was home to two makeshift aircraft carriers, the *USS Wolverine* and *USS Sable*. These ships began life as the Great Lakes passenger ships *SS Seaandbee* and *SS Greater Buffalo*.¹ The Detroit Shipbuilding Company in Wyandotte, Michigan, built the *SS Seaandbee* in 1913 and the American Ship Building Company, Lorain, Ohio, and Great Lakes Engineering Works, Ecorse, Michigan, worked to realize the *SS Greater Buffalo*. Both ships used coal-fired boilers and side-wheel propulsion. The *USS Wolverine's* name paid tribute to the state of Michigan where workers originally built the ship and to Lake Michigan where she would operate.² American Shipbuilding at Buffalo converted both ships. *The USS Wolverine* received her



Figure 3. The *USS Wolverine*. Source: <http://www.sheboyganpress.com/story/life/2015/06/12/sheboygan-history/71153346/>

commission in 1942 and the *USS Sable* in early 1943. Both the *USS Wolverine* and the *USS Sable*'s homeport was Chicago's Navy Pier.³

The Great Lakes were free of enemy ships and submarines. Thus, neither the *USS Wolverine* nor the *USS Sable* were fitted with armor or weapons. This provided both the ships' crew and the pilots some measure of comfort. Nevertheless, accidents occurred. Of the 116,000 landings made on these ships, only 120 pilots ditched their plane or crashed into Lake Michigan.⁴

The SBD-3 Dauntless BuNo. 00624 on display at the Main Campus of the Air Zoo rested on the bottom of Lake Michigan for fifty years. Once recovered, restoration technicians, staff, and volunteers at the Air Zoo spent nine years bringing the plane to show condition. Flying from the *USS Ranger*, BuNo. 00624 took part in Operation Torch, the invasion of North Africa in 1942. Lieutenant John "Jacko" DeVane Jr., awarded the Navy Cross, logged most of BuNo. 00624's flight time.⁵



Figure 4. SBD-3 Dauntless BuNo. 00624. Note the perforated braking flaps. These slowed the plane's dive and provided the pilot with increased maneuverability. Photo taken by the author.

The second Dauntless on display at the Air Zoo, SBD-2p 2173, is still undergoing restoration. Though its history is unclear, BuNo 2173 was likely present at the Battle of Coral Sea aboard the USS Yorktown. In 1944, perhaps due to carburetor icing, BuNo. 2173's engine cut out during a training run. The pilot, Lieutenant John Lendo, ditched the plane in Lake Michigan. A and T Recovery pulled the plane from 250 feet of water in 2009.⁶



Figure 5. SBD-2p BuNo. 2137. Visitors can stand shoulder to shoulder with the restoration technicians at the Air Zoo. Photo by the author.



Figure 6. SBD-2p BuNo. 2137. Photo by the author.

The Dautless's proudest moment came in 1942 during the Battle of Midway. Excellent intelligence proved instrumental to the victory at Midway. Concerning ships allotted to the battle, the Japanese Navy held the advantage. However, airpower was much more even. Three American carriers, the *USS Yorktown*, *USS Hornet*, and *USS Enterprise* had the additional benefit of the airfield on Midway island to provide air power. This matched up well to Vice Admiral Chuichi Nagumo's four carriers, the *Akagi*, *Kaga*, *Soryu*, and *Hiryu*.⁷ The advantage Admiral Nimitz had was that he knew the Japanese were coming. Thus, he planned to ambush the Japanese fleet. *The USS Hornet* and *USS Enterprise* laid in wait north of Midway at a position named Point Luck.⁸ Commander C.W. McClusky departed *Enterprise* with thirty-three Dauntless dive-bombers. When McClusky arrived at the coordinates, the Japanese fleet was not there. McClusky received incorrect information. He made the decision to continue on his heading for another thirty-five miles, then turn to starboard, and follow the last known heading of the Japanese fleet until fuel consumption forced him back to *Enterprise*.⁹

With five minutes remaining before he had to return to *Enterprise*, McClusky's two squadrons of Dauntless dive bombers crossed paths with the Japanese destroyer *Arashi* on its way to regroup with the Japanese carrier fleet after depth charging maneuvers against American submarines. McClusky adjusted to the destroyer's heading and ten minutes later, he found the Japanese fleet.¹⁰ Flying TBD Devastator torpedo planes, an earlier attack by Torpedo Eight from *USS Hornet* and Torpedo Six from *USS Enterprise* had Japanese defenses trained low.¹¹ This allowed McClusky and his two squadrons along with Max Leslie's Bombing Three from *USS Yorktown* arriving from the south to dive on the Japanese fleet with little opposition.¹² Furthermore, munitions and refueling planes covered the flight decks of the Japanese carriers. Leslie's group totaled seventeen dive-bombers. Due to engine difficulties, one of McClusky's pilots had to turn back, leaving thirty-two. Nevertheless, in a span of five minutes, dive-bombers hit and mortally wounded the *Akagi*, *Kaga*, and *Soryu*.¹³ Later that afternoon, Bombing Six, Bombing Three, and Scouting Six from *Enterprise*, flying twenty-five Dauntlesses, scored hits on the remaining carrier *Hiryu*.¹⁴ She sank the next day.

A visit to the Air Zoo brings the machines pilots such as C.W. McClusky flew up close and personal. Events such as the Battle of Midway are riveting—and indeed, so is the attention to detail restoration technicians at the Air Zoo employ. Though it is not as big as the National Museum of the USAF or the Smithsonian Air and Space Museum, the Air Zoo's inviting setting surrounding all the exhibits

makes for a welcoming visit and makes up for any shortcomings.

SBD-3 Dauntless Specifications

Design	Specifications
Crew	Two: Pilot and Gunner
Wingspan	Forty-one feet six inches
Engine	Wright R-1820-32
Power	1000 hp
Top Speed	250 mph
Max Bomb Load	1,200 pounds
Pilot's armament	Two fixed 50.s
Gunner's armament	Two movable 30.s

Table 1. Specifications. Source: Appendix B. Barrett Tillman, *The Dive Bombers of World War Two*.

Notes

1. Paul M. Somers, *Lake Michigan Aircraft Carriers* (Charleston S.C: Arcadia, 2003),19,43.
2. Ibid., 60.
3. Beth Dippel, "Sheboygan County History: Aircraft Carriers Once Roamed Lake Michigan," Sheboygan Press Media, June 12, 2015, accessed December 31, 2016, <http://www.sheboyganpress.com/story/life/2015/06/12/sheboygan-history/71153346/>
4. Ibid.
5. SBD-3 Dauntless, Information taken from the placard at the Air Zoo on December 29, 2016.
6. SBD-2p Dauntless, Information taken from the placard at the Air Zoo on December 29,2016.
7. Harald L. Buell, *Dauntless Helldivers* (New York: Orion, 1986),81; Barrett Tillman, *The Dauntless Dive Bomber of World War Two* (Annapolis: Naval Institute, 1976), 60.
8. Buell, 83.
9. Tillman, 70.
10. Ibid.
11. Stephen L. Moore, Pacific Payback, *The Carrier Aviators Who Avenged Pearl Harbor at the Battle of Midway* (New York: Caliber, 2003), 185, 190.

12. Tillman, 74.

13. Moore, 212.

14. Tillman, 84.

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