

JOIN THE



N44VY AND SEE THE WORLD!

On November 14, 1910, Eugene B. Ely, a pilot with the Curtiss Aerial Exhibition Team, coaxed his Curtiss Pusher off the deck of the cruiser USS Birmingham (CL-2)—which had been specially modified for the occasion—while it lay at anchor off Hampton Roads, Virginia.

On January 18, 1911, in San Francisco Bay, Ely raised the bar a few notches and landed on the armored cruiser USS Pennsylvania, later taking off from the same platform, de facto signing the birth cer-

tificate of U.S. naval aviation.

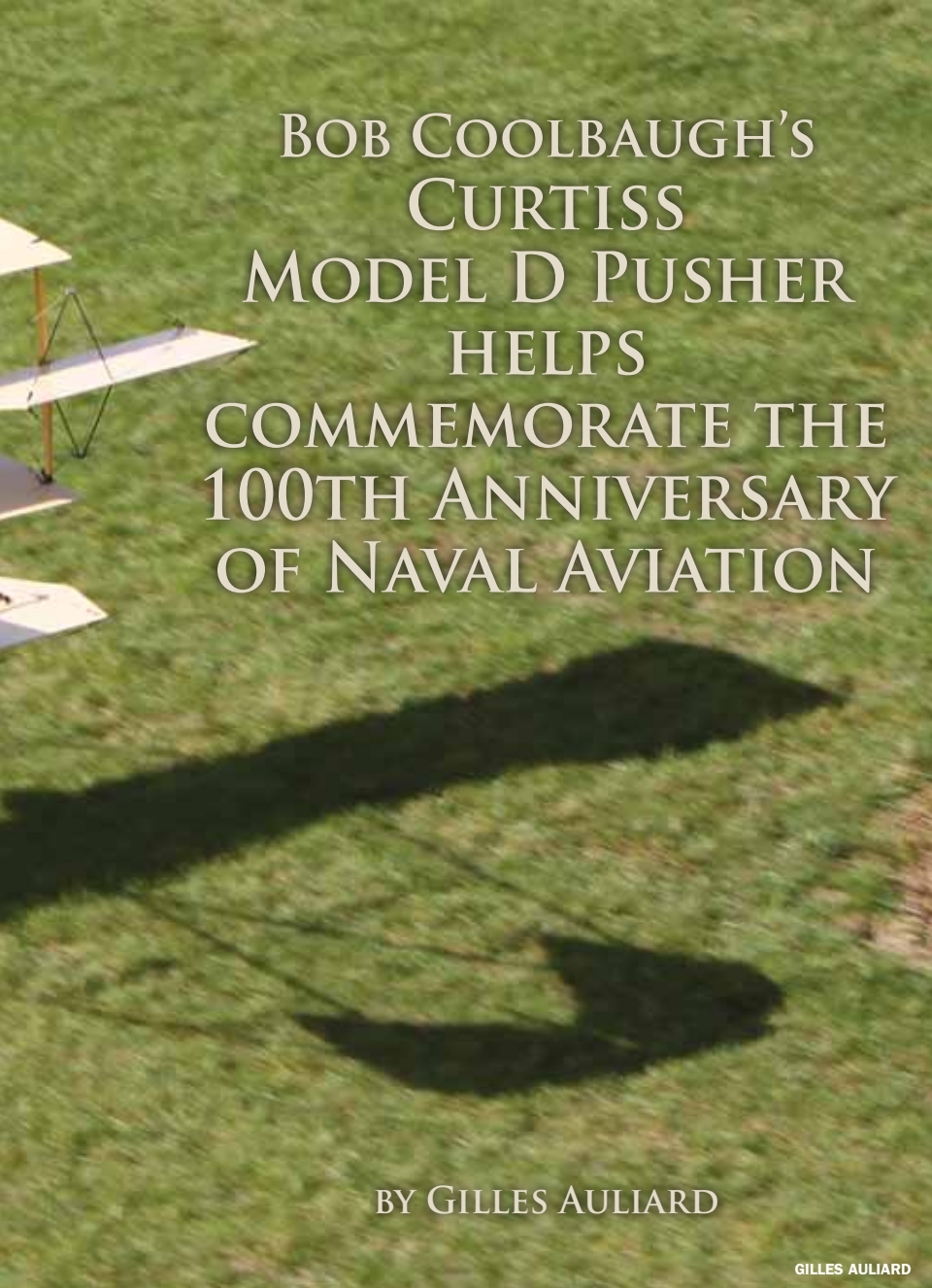
Eugene Burton Ely was born in Williamsburg, Iowa, on October 21, 1879, and raised in nearby Davenport. He attended and graduated from Iowa State University in 1904. Following graduation, he moved to San Francisco, California, where he was active in the early days of the sales and racing of automobiles.

Relocating in Portland, Oregon, in early 1910, Ely worked as a mechanic for E. Henry Wemme, a local auto dealer. Soon after, Wemme purchased one of Glenn Curtiss' first pushers powered by a four-

cylinder engine and acquired the franchise for the Pacific Northwest. Wemme had no idea how to fly the contraption, so Ely volunteered to fly it for him. Ely didn't do well initially, crashing it on his first "flight"; to his credit, Ely offered to buy the wreck.

Within a few months, he had repaired the airplane and taught himself to fly. In June 1910, he participated in a display in Minneapolis, Minnesota, and met Glenn Curtiss, who hired him for his barnstorming exhibition team.

In October 1910, Capt. Wash-



BOB COOLBAUGH'S
CURTISS
MODEL D PUSHER
HELPS
COMMEMORATE THE
100TH ANNIVERSARY
OF NAVAL AVIATION

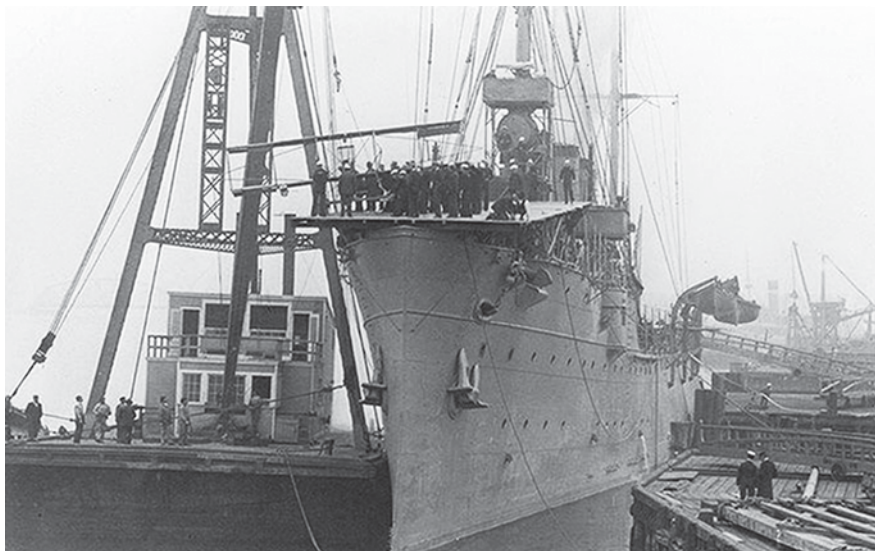
BY GILLES AULIARD

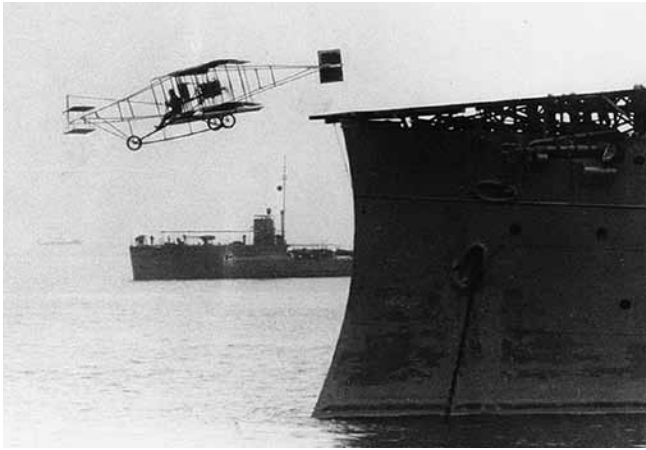
GILLES AULIARD

...Original construction methods were followed and original material used when possible. The bamboo used in the construction was tracked down to the original importer in New Jersey. . . .

With Bob Coolbaugh in the pilot's seat, the Curtiss Pusher cruises in the pattern at New Market Airport. These pictures were taken from Andrew King's Taylorcraft, with an outside temperature barely above freezing and a surface wind at 6 to 8 mph. Normally, such light wind conditions would not be much of a factor, but the Pusher has proven to be a handful in all but the lightest breezes.

November, 1910, Norfolk Navy Yard—the US Navy hoists a company Curtiss Pusher aboard the USS Birmingham. The takeoff platform, angled downward at a 5 degree angle, had been build on the foredeck of the scout cruiser with the express purpose of demonstrating aircraft operations were possible from a ship. No expectation of a landing was part of this activity. The project, initiated by Captain Washington I. Chambers, was paid for by a wealthy aviation enthusiast, John B. Ryan, was endorsed by the Assistant Secretary of the Navy, Beekman Winthrop. Glen Curtiss made the same pusher he'd used the previous spring, the Albany Flyer, available for use.



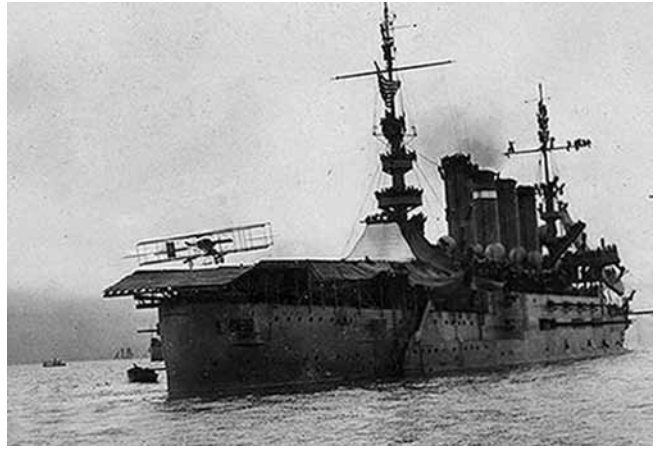


U.S. NAVAL HISTORICAL CENTER

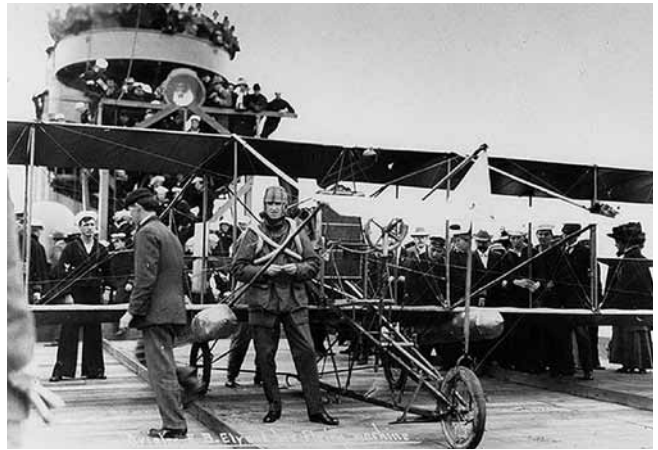
November 14, 1910—With the weather conditions deteriorating, Ely gave the signal at 3:16 pm for release of the Curtiss Pusher. With the Curtiss 50 hp engine roaring, it rolled down the 57 foot ramp. With barely enough speed to get airborne, Ely and the Pusher dipped below the bow just after takeoff, and continued to the surface of the water of Hampton Roads, Virginia. With no forward speed from the ship (you can see it's at anchor) to add some airspeed to the biplane's takeoff effort, the flight nearly ended with a splashdown. As it was, the wheels and prop of the Pusher touched the water. The prop cracked, necessitating a quick landing on nearby Willoughby Spit. Still, the experiment was deemed a success, and preparations were made across the United States for both a takeoff and a landing from a warship.



All hail the intrepid pilot! Eugene Ely is hosted on the shoulders of US Army personnel after returning to shore following his successful landing and takeoff from the cruiser Pennsylvania. Sadly, Ely would not live to see 1912. He died on October 19, 1911 in the crash of a Curtiss Pusher during a flight exposition in Macon, Georgia.



January 18, 1911—Success! Ely guides the Pusher over the downturned end of the 120x30 foot “runway” built above the deck of the armored cruiser Pennsylvania. The arresting system of hooks attached to the Pusher's landing gear, coupled with a set of ropes strung across the deck, with sandbags attached at each end, quickly brought the biplane to a stop.



Eugene Ely prepares for takeoff from the 120-foot temporary platform built above the aft deck of the USS Pennsylvania, anchored in San Francisco harbor. The large crowd on board was mirrored by the thousands lining the bayfront to witness the earlier landing and now take off. Sailors from various merchant sailing vessels stood on the yardarms of their ships to get a glimpse of the action.

ington A. Chambers, who was responsible for aviation matters at the Navy department, traveled to Belmont Park, New York, to meet with pioneer aviators at the International Air Meet and inspect their machines. During discussions with Ely, he was quite impressed with Ely's technical knowledge.

Less than a month later, Chambers attended another air meet near Baltimore, Maryland, and again met

with Ely. Upon hearing the captain's idea of a ship landing, Ely immediately embraced the concept.

In less than two weeks' time, the project took shape. At the Norfolk Naval Shipyard, a wooden platform was quickly constructed over the foredeck of the scout cruiser USS Birmingham.

Designed by naval constructor William McEntree and paid for by wealthy aviation enthusiast John



GILLES AULIARD

This Curtiss at rest in its grass environment. The boxkite-like structure of the Pusher is held together by no less than 130 pieces of wire.

Narry Ryan, the structure provided a 57-foot-long takeoff run for Ely's biplane.

Shortly before noon, on November 14, 1910, the USS Birmingham steamed down the Elizabeth River toward Hampton Roads, where the flight was to take place.

However, the weather was dreadful, marginally improving by mid-afternoon.

Ely, warming up his engine and checking its controls, waited impatiently during the lengthy process of the ship raising anchor. Noting the visibility was again deteriorat-

ing, he decided on an immediate attempt, even though the ship was stationary. At 3:16, he gunned the engine, gave the release signal, rolled down the ramp, and was airborne—almost.

The Curtiss briefly touched the water, and the propeller started vibrating heavily. Ely had to touch down at nearby Willoughby Spit after a five-minute, 2-1/2-mile flight. Even though the flight did not fully reach its goals, it was viewed as a major achievement and received widespread publicity.

Soon after, Capt. Chambers pro-

posed that Ely try to land his plane onboard ship. The aviator offered to make an attempt in January 1911, in San Francisco, California, where he would be participating in yet another air meet.

The Pacific Fleet's armored cruiser Pennsylvania was chosen, and the Mare Island Naval Shipyard constructed a temporary wooden platform over the aft deck and the gun turret.

Ely and others devised a method of stopping the planes within the platform's 120-by-30-foot dimensions. A series of ropes, with sand-



This is the most important instrument in the Curtiss, and the only one installed the original biplane: a piece of yarn, a simple and very effective yaw indicator. Even today, Yaw strings are often used on gliders.



A very odd—but authentic—detail is the use of horse blanket security pins to hold the elevator in place. Its neutral incidence can be changed on the ground by sliding the fitting up or down on a vertical post, with the pins securing the mount.



GILLES AULIARD

Bob is coming for a low and slow pass over New Market airport's runway. Flying the Pusher requires its pilot to keep a good grip on the wheel at all times. Nobody knows what the airplane will do if you let go of the wheel.



Bob Coolbaugh relaxes after another successful flight.

In addition to civilian aviators, Model Ds were purchased by the U.S. Army and Navy as airborne observation platforms.



Andrew is getting ready for a flight in the Pusher.

bags at each end, would be stretched across the temporary deck and held above it by boards laid along its length. Hooks were attached to the landing gear to catch the ropes, and the weight of the sandbags would bring the machine to a rapid halt.

Shortly before 11 a.m. on the morning of January 18, 1911, Ely took off from Tanforan Racetrack to reach the Pennsylvania, anchored, in full view of the crowds, off the San Francisco waterfront.

On final, Ely responded quickly to the unexpected updraft that caught his lightly loaded plane, dove, and the hooks snagged the arresting gear about halfway up the ramp's length. The Curtiss pulled the ropes and sandbags and came to a smooth stop.

After posing for photographs, Ely remounted his machine, and, an hour after the world's first ship-board airplane landing, made the second successful takeoff from a ship. Capt. Pond, commanding officer of the USS Pennsylvania, sent

a favorable report to the Navy department, and the Navy started the slow process of bringing flying machines into its force structure.

One day later Lt. Theodore G. Elyson began the flight training that would make him the U.S. Navy's first aviator.

Ely's triumph was short-lived, as later that year, on October 19, 1911, while flying during a meet in Macon, Georgia, his plane crashed and he was killed.

Opening with an all-out bash in San Diego in February 2011, the U.S. Navy began the celebration of the Centennial of Naval Aviation (CONA) in style, with no less than 32 CONA Tier 1 Events. These air shows throughout America will pay tribute to the aircraft and airmen who contributed to this first century of flight. One of the folks participating in the events is longtime airplane restorer and now replica builder Bob Coolbaugh of Manassas, Virginia.

Coolbaugh retraces his involvement in the project:



“About three years ago, the Navy announced that they were looking for ideas and propositions in relation with the Centennial of Naval Aviation that they were planning.

“I started talking with some of the Navy people involved in this, and we were kicking ideas around. There were no Curtiss Pusher of the type used by Ely to land on the Pennsylvania left, so I offered to build an as-exact-as-possible—with flight safety in mind—replica of the plane that Ely flew on January 18, 1911. I knew I could do it.”

The Curtiss Model D Pusher was a biplane fitted with a wheeled tricycle landing gear. Early examples of the machine were built in a canard configuration, with elevators mounted on struts at the front of the aircraft, in addition to a horizontal stabilizer at the rear. Later, the elevators were incorporated in the tail unit and the canard arrangement was dispensed with, resulting in what became known as the Curtiss Headless Pusher.

Directional control (yaw) of the airplane was accomplished by turning on the control column left and right. Fore and aft movements of

the column controlled climb and descent with the elevator, and roll control was achieved by leaning left and right against a shoulder yoke that actuated the mid-strut mounted ailerons.

By mid-1911, Curtiss Pushers were pretty much standardized and being manufactured in what could be considered production quantities. Curtiss began to use specific designations in its advertising.

In addition to civilian aviators, Model Ds were purchased by the U.S. Army and Navy as airborne observation platforms. A number of them were exported to foreign militaries as well, including the Russian navy.

Coolbaugh is a bold Navy man, as he explains:

“I got bit by the flying bug quite early in life.

“My dad was a fighter pilot during World War II. When I was a little kid, my father worked at the local airport, so, he would babysit me there. Consequently, I grew up in the middle of those old airplanes, which, actually, were new at the time; [airplanes] such as Cubs, Aeroncas, Stinsons, and the like.

“When I was old enough, I chose

to join the Navy. This choice was mainly because I wanted to fly off the deck of aircraft carriers. I was lucky enough to do it and spent 21 years with the Navy: 10 years in active duty and 11 years in the Reserves.

“The active-duty years were even more exciting, adventure-filled than I could have imagined. Flying on and off aircraft carriers is the most exhilarating sensation. However, it is a young’s man game, with some downsides, the biggest one being that you are never home.

“So, after a while, I looked at the airlines as a career move and left the Navy, flying for 27 years with what is now Continental, soon to be United.

“Over 20 years ago, I got involved with Andrew King and some other antique airplane guys. I finally had enough money to buy the bits and pieces of a 1930 Monocoupe that was owned by Bud Gurney, the longtime friend and partner of Lindbergh.

“This led to me running the Monocoupe Club for 12 years, and started my involvement in a hobby that I have been pursuing full time since I retired.”

Starting from the plans drawn by



Charles Schultz [no, not the Schultz of Snoopy fame—HGF], which were supposedly taken from original blueprints, Coolbaugh built, from the ground up, a replica of the Curtiss version that undertook the first carrier landing.

However, concessions to modernity had to be implemented, as the airplane will be operating in a cross-country modern environment and, occasionally, will have to land at towered airports.

The first, and most important, concession to functionality is the six-cylinder Continental 125-hp engine, ensuring safe and reliable operation. With the inherent stability issues with the aircraft's design, one cannot afford to worry about engine performance. Other add-ons are disc brakes, a radio and transponder, and a starter.

However, original construction methods were followed and original material used when possible. The bamboo used in the construction was tracked down to the original importer in New Jersey who supplied the Glenn Curtiss Factory in Hammondsport, New York, in 1910.

Helped and advised in his task by Andrew King, well known in the antique airplane world, Coolbaugh built some 90 percent of the project

over long and tedious working days in his Shenandoah Valley workshop.

Art Wilder, the project leader for the Hudson Flyer replica built by a team of volunteers at the Glenn H. Curtiss Museum in Hammondsport, New York, proved an invaluable resource in researching original Curtiss practices and procedures.

Vet Thomas of Hilton, New York, builder of the Curtiss Pusher replica now hanging at the Greater Rochester International Airport, used his computer-aided design and computer-aided machining (CAD/CAM) program to water-jet cut the plate metal parts. As with any project, many friends freely donated their time and talents to help push the project to completion.

Registered as N44VY, the Pusher flew for the first time on October 8, 2010. The early test-flight program, in the hands of Coolbaugh and King, revealed insufficient engine cooling as well as an endemic lack of control. With its 37-foot wingspan and an empty weight of 970 pounds, the airplane has a wing loading of 4 pounds per square foot—about half the wing loading of a Piper J-3, making it very sensitive to any kind of turbulence.

At this point, Bob was ready to throw in the towel:

“After the first 12 flights, six of which were mine, I was ready to put the thing up on a pylon at the entrance of the airport.”

A “crash” program to alleviate these problems was designed, with incremental improvements continuing to this day. The result was a plane that flew like a 100-year-old plane, but was controllable enough to depart for Chambers Field, Naval Air Station Norfolk, Virginia, where the Curtiss participated in the November 12 ceremonies commemorating Eugene Ely's takeoff from the deck of the USS Birmingham.

The Curtiss is scheduled to participate in a number of events across the United States, including the New York Fleet Week/Jones Beach Air Show in May, Thunder Over Michigan in July, EAA AirVenture 2011 in late July, NAS Patuxent River in September, and NAS Oceana in September, while other events are still in the planning stage.

Unfortunately, the U.S. Navy has not approved a request to recreate Ely's arrested landing by allowing Coolbaugh or King to land on a modern flattop. That one event would close the loop on 100 years of naval aviation, and two of the most daring pilots I know are primed and ready!