

WARM AIR 29 Aug 20

Aviation Sports Club Gliding Newsletter

THIS WEEKEND:

Club Cellphone 022 357 6731

www.ascgliding.org

Saturday

Instructing:

Bank Acct 38-9014-0625483-000

Towing:

Duty Pilot

Sunday

Instructing:

Towing:

Duty Pilot

WE ARE STILL AT COVID LEVEL 3 THIS WEEKEND - NO FLYING.

MEMBERS NEWS

SATURDAY

COVID level 3 - no flying. Good looking day though

SUNDAY

Ditto

GNZ Training Presentation followed by Mid Winter Dinner -Sat 29th August @ 5pm @ Drury

~~This is the GNZ travelling road show presenting on the new soon to be introduced training system. We are welcome to attend.~~ **Most unlikely, we are still in lockdown and no gatherings of more than 10 people**

GLIDERS OF WORLD WAR 2 VK 7a The Colditz Cock *Jonathan Pote 2020*

The history of the Colditz Cock glider needs to be told. The story follows a plot that no author, under the influence any psycho-active drug, could possibly have concocted. And yet it is true and fully authenticated.

That it was a British design built in Germany is merely unusual and explained by the slightly less likely fact that the team were British prisoners of war in Colditz Castle, in eastern Germany. That the idea came from an Army Officer without flying experience, and design was facilitated by the fact that a standard reference book of aircraft design happened to be in the Castle Library, a collection assembled before WWII adds to the odds. The prisoners were given access to the library to help dissuade them from escape attempts, something counter-productive the guard commander might have rued in retrospect.

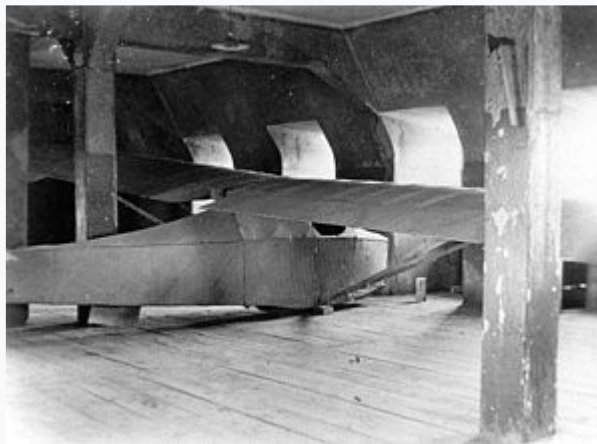
More lucky coincidence provided a leading prewar glider pilot to assess and assist the plan. He should never have been taken prisoner, as he was an instructor at a Vickers Wellington training school, supposedly non-operational and normally flying only over the United Kingdom.

Being designed and built in a structure atop a rock fortified for over a thousand years trumps even the Airspeed Horsa (and DH Mosquito), these being designed and built in a relatively recent three century old medieval manor house.

It becomes positively surreal when one factors in the fact that Spitfire Ia N3200, in which one of the Cock's team was shot down over Dunkirk in 1940, has been salvaged, rebuilt, and flown in the recent 'Dunkirk' film. It re-created its own demise, simulating a belly landing on the beach. It is now owned by the Imperial War Museum.

That the US Army was unsporting enough to liberate the Colditz prisoners of war before they could fly their glider to (hopefully) freedom deflates the story slightly, and because only the absolute minimum of POWs were aware of the Cock, post-war initially the story was dismissed as a myth, despite the designer keeping the plans when he returned home. The Cock itself vanished in post-war turmoil, no doubt used as firewood like so many other gliders in the hungry and cold years in Germany. It was only when a unique photograph taken by a liberating American military journalist surfaced in 1947 that the story was accepted.

A replica was constructed fifty years later and successfully launched from the Chapel roof. Radio-controlled, it flew across the Mulde River to a survivable if not very pretty landing, proving the whole plan could well have been successful.



The only known photograph of the original "Cock" glider taken on 15 April 1945 by Lee Carson, one of two American newspaper correspondents assigned to the task force which captured the castle.

Colditz Castle and Oflag IV-C.

Schloss Colditz was perched on a rocky spur, seventy-five metres above the Mulde River almost vertically below. Fortified for over a thousand years, the spur was topped by Schloss Colditz from the sixteenth century onwards and became an important government post. In 1940 it became Oflag IV-C, a prisoner of war camp for officers who had proved 'troublesome' in other camps. It was over six hundred kilometers from the nearest territory not occupied by Germany (Switzerland). Tunneling, so popular in the POW camps in the sandy forests of eastern Germany (from which most inmates came) would seem to be impossible. None-the-less, not only was a tunnel started, but some three dozen POWs escaped from Oflag IV-C by devious other methods. The Germans held four 'Appels' (Roll calls) a day, and if those present failed to cover an absentee, an alert was sent to all disciplined personnel within forty kilometers, Hitler Youth included.

By concentrating 'difficult' prisoners of war, the Germans also concentrated military talent. Very few indeed were party to the plan, just those whose knowledge and construction skills were vital. A dozen POWs built the glider in the loft above the chapel; None too surprisingly, they were known as 'The Twelve Apostles'. However, sharing the cramped confines of the castle with such people as Lt Col David Stirling (founder of the SAS), New Zealander Captain Charles Upham, (20th Battalion and the only combatant soldier ever to be awarded a bar to his Victoria Cross - the only others were medical officers in WWI), Group Captain Douglas Bader and many other great leaders can hardly have been a disincentive to ingenuity and courage. General Tadeusz Bór-Komorowski, head of the Polish Underground Army was another inmate, as was 2Lt Desmond Llewelyn of the Royal Welch Fusiliers. An actor post-war, he appropriately played the part of Q' in the first seventeen James Bond films



Spitfire N3200, shot down and destroyed over Dunkirk in May 1940 whilst flown by Squadron Leader Geoffrey Stephenson of 19 Squadron. Salvaged in 1986, the re-incarnated aircraft flew again in 2014

Colditz Castle as Oflag IV-C, April 1945

Design and construction:

In a POW camp housing largely Air Force officers with escape ideas including exiting submerged in pig swill or sewn into a mattress, it was Lieutenant Tony Rolt (an Army infantry officer with no aviation background, captured after the heroic delaying defence of Calais), who noted that the chapel roof was not only invisible from anywhere below, but also flat. A runway (of table tops) and a catapult (a bath, filled with concrete, using a rope over a pulley to achieve a 30 MPH launch and then predictably back release) could be constructed unseen. Rolt had 'earned' his transfer to Colditz by having escaped no less than seven times from other POW camps, once almost crossing the Swiss border.



Bill Goldfinch and Jack Best took on the design. By chance they found a copy of *Aircraft Design* by CH Latimer-Needham in the Castle library. Latimer-Needham had designed several light aircraft, including the Luton Minor and its stable mates. His exposé of simple airframe construction was just what was needed, although essentially the aim was similar to a balsawood model aircraft and design was within the capabilities of any knowledgeable pilot.

Lorne Welch was asked to review the stress diagrams and calculations made by Goldfinch. Pre-war he had been an experimental flight observer and recreational glider pilot. It was he who had become an instructor on Wellingtons, in which capacity he should not have left UK airspace (teaching new crews was as dangerous as operations) but flew a reserve Wellington to make up numbers on a 'Thousand Bomber Raid'. Post war, he competed internationally in gliding becoming one of 'The Greats', and was the first person to cross the English Channel twice by glider.

The Clark Y and YH airfoils



One fundamental decision was the airfoil to be used. It had to be as simple as possible to construct, fairly efficient and have a benign stall. The maximum thickness at 30% chord had to accommodate bed-boards, the unpromising items chosen for the spar. Unsurprisingly, the Clark YH was chosen.

Virginus E Clark crafted his 'Clark Y' airfoil in 1922, seeking an easily constructed general purpose shape. The lower surface is flat from 30% chord rearwards for ease of wing or propeller construction and simplicity in measuring the angle of incidence. That Lindbergh (wanting fuel economy and easy handling) crossed the Atlantic in the *Spirit of St Louis* with its Clark Y wing and later Sydney Camm used it for his Hawker Hurricane gave it prestigious provenance. That the Northrop Tacit Blue top secret stealth research aircraft would use it

thirty years later meant its time had not passed (Jack Northrop chose it as its almost completely flat bottom helped damp radar signature).

The Clark YH has a slightly reflexed trailing edge, improving handling at low speeds without significantly compromising construction problems

Construction:

The prisoners' beds used bed boards of beech. Beech is a strong and slightly flexible timber used not unusually for main spars even when other timbers are available. Thirty load bearing ribs were made from the best available beech fragments and any other available wood, and no doubt the longerons received careful thought and timber selection.

The covering was of checked cotton from sleeping bag covers, attached and treated with 'dope' obtained by boiling down maize from the food ration. The 'glue' is not recorded but no doubt equally ingeniously concocted. Electrical wiring that was not vital in its original position in the castle provided material for conventional control wires

A list of tools used in constructing the glider	
Side-framed saw	Large <u>plane</u> , 14½ in (368 mm) long
handle of <u>beech</u> bed board	2 inch blade obtained by bribing a German guard
frame of iron window bars	wooden box (four pieces of beech screwed together)
blade of <u>gramophone</u> spring with 8 teeth / in (3 mm teeth)	
Minute saw for fine work	Small plane, 8½ in (216 mm) long
gramophone spring blade, 25 teeth / in (1 mm teeth)	blade made from a table knife
5/8 in (16 mm) metal drill obtained by bribery	Plane, 5 in (127 mm) long
	<u>Square</u>
drill bits for making holes made from nails	made of beech with gramophone spring blade
A gauge	Set of keys including:
made of beech, with cupboard bolt and <u>gramophone needle</u>	universal door pick, forged from a bucket handle

Finale

As the glider was completed in the spring of 1945, so the purpose on the flight became more vital. By now American troops were so close that the prisoners could hear the heavy artillery as the allies advanced. Whilst the capture of Colditz seemed only days away, there was a fear that some of the guards or designated SS troops might massacre the inmates. After 'The Great

Escape', when fifty escapees were shot in cold blood on Hitler's orders, this was a not unreasonable fear. Ideally, the launch would be made not only at night but also during an air raid warning. It was thus hoped to minimize the chances of anyone outside the castle not just seeing the near-silent glider, but also where it landed, probably deliberately in tree cover.

All POW camps had an escape coordinator ('Big X') to approve and de-conflict the various local plans. Rather than for two escapees to attempt just their own freedom, they now were instructed to make for the local American Commander and appraise him first hand of the situation inside the castle plus the details of where the prisoners would barricade themselves in should SS troops commence a massacre.

Even that need evaporated when the prisoners were successfully freed on 16th April 1945, and the Colditz Cock was never launched.

The Sequel

In 1999 a full-sized replica of the Colditz glider was commissioned by a television channel and built at Lasham Airfield by Southdown Aviation Ltd from Bill Goldfinch's original plans ([Lasham](#) is the busiest gliding airfield in the UK, with up to one hundred gliders airborne simultaneously).

The glider was test flown successfully in 2000 by John Lee on its first attempt at [RAF Odiham](#) with Best, Goldfinch and about a dozen of the veterans who had worked on the original more than 55 years earlier proudly looking on. Jack Best died later that year. The replica is now housed at the [Norfolk and Suffolk Aviation Museum](#) at [Flixton](#), [Suffolk](#).

In March 2012, a radio-controlled full-sized replica glider was built by Tony Hoskins' UK based glider maintenance/repair company South East Aircraft Services in the Chapel attic and was flown from the chapel roof for a television documentary. Launched unmanned from the same 'runway' as had been selected for the original, and by the same catapult method, the radio-controlled replica made it safely across the Mulde River. It landed in a safe if not pretty way in a meadow 60 metres below the 'runway'.

With a lift/drag ratio estimated at 12:1 (compared to 17:1 for the Schneider Grunau Baby), a pilot controlled landing could have been seven hundred metres away from the launch, an excellent springboard to an escape/evasion attempt. Bill Goldfinch had a suitable name for an aircraft designer. He was perhaps unaware that the delightful pre-war biplane, the Focke-wulf Fw 44 'Stieglitz', was named 'Goldfinch'.

Specifications

General characteristics

- **Crew:** 2
- **Length:** 20 ft 0 in (6.1 m)
- **Wingspan:** 32 ft 0 in (9.75 m)
- **Aspect ratio:** 6.4
- **Airfoil:** [Clark Y-H](#)
- **Empty weight:** 240 lb (108.86 kg)
- **Gross weight:** 560 lb (254.02 kg)

Performance

- **Stall speed:** 31 mph (50 km/h, 27 kn)
- **Lift-to-drag:** 12:1
- **Wing loading:** 3.45 lb/sq ft (16.84 kg/m²)

Something to watch in winter (Thanks AGC Newsletter)

- **First Light**
- (from the book written by Geoffrey Welland, a young Spitfire pilot)
- <https://www.youtube.com/watch?v=3liVmImc7CQ&t=228s>
- And from Stefan
- **Epic Elevator - 6 m/s Thermal in a Glider**
- <https://www.youtube.com/watch?v=ATOq8N3fBfE>

THE ISSUE OF "SLIP" OR TOP RUDDER IN A THERMALLING TURN

https://www.youtube.com/watch?v=W0HKZi_ZOvg

This issue is controversial, but can be shown to be more efficient in a thermalling turn. The full aerodynamic aspects of this technique are fully discussed in this YouTube video and worthwhile watching.

I am certainly not advocating its use for student glider pilots, a coordinated turn with the yaw string aligned, is **still** the desired training aim. What is shown in this video is that applying a small amount of "top rudder" inducing a "slip" in a thermalling turn reduces the amount of top aileron drag, thereby increasing efficiency.

The amount of deflection of the yaw string towards the upper wing is in the order of 10 degrees, not much, and barely discernible.

The promoter mentions that some gliders are more open to this technique than others, how does yours respond? Promotion of this technique is popular in mountain flying, where the accuracy required and safety measures required, are paramount.

What is most **undesirable** is the opposite application of a heavy inside foot promoting "skid" in a turn, which is "pro-spin" and unsafe.

This related YouTube video explains why initiating a skidding turn by the overuse of rudder results in a spin.

<https://www.youtube.com/watch?v=t2wlJGybgSv>

GLIDING EVENTS CALENDAR 2020/21

Matamata Cross Country Course

-Sat 24th Oct 2020 - Wed 28th Oct 2020

Taupo Central Plateau (practice 31 Oct + 7 comp days 1 to 7 Nov)

-Sat 31st Oct 2020 - Sat 7th Nov 2020

Omarama South Island Regionals (TBC)

-Sat 14th Nov 2020 - Sat 21st Nov 2020

Matamata Northern Regionals

practice 28 Nov + 7 comp days 29 Nov to 5 Dec)

Springfield Soaring Championships

-Sat 28th Nov 2020 - Sat 5th Dec 2020

For further info see

<https://gliding.net.nz/events/?gnz=true&other=true&type=all&timerange=future&pageView=summary>

Matamata Air Cadet Camp

- 7th - 11th December 2020

Omarama YouthGlideNZ camp

-Thu 10th Dec 2020 - Sat 19th Dec 2020

Matamata Sailplane Grand Prix (4 comp days 27 to 30 Dec)

-Sun 27th Dec 2020 - Wed 30th Dec 2020

Omarama Nationals (practice day 01 Jan + 9 comp days 02 to 10 Jan inclusive)

-Fri 1st Jan 2021 - Sun 10th Jan 2021

Auckland Enterprise (practice day 16 Jan + 7 comp days 17 to 23 Jan inclusive)

-Sat 16th Jan 2021 - Sat 23rd Jan 2021 @ Drury

Matamata Club Class and MSC (practice day Fri 29 Jan + 9 comp days 30 Jan to 7 Feb)

-Fri 29th Jan 2021 - Sun 7th Feb 2021

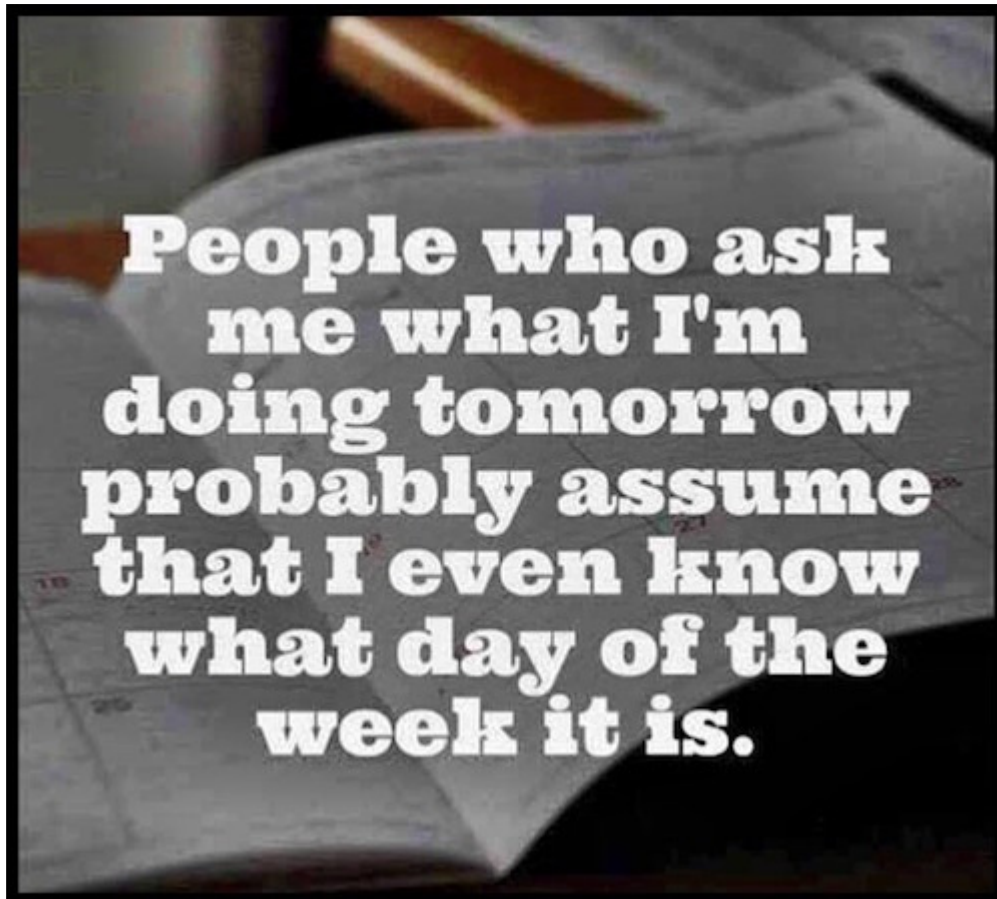
Vintage Kiwi Rally @ Te Kuiti Camp Gliding New Zealand Te Kuiti

Sat 6th Feb 2021 - Sat 13th Feb 2021 Tow plane = Fox Bat LSA

(Waipukarau) Central Districts Regionals Competition Gliding Hawkes Bay & Waipukarau
Inc Waipukarau

Sat 20th Feb 2021 - Sat 27th Feb 2021

Printing Conventions: Any contribution will have the author's byline; Anything in Italics is either a byline or an editor comment; Tailpiece is the editorial.



Duty Roster Jul, Aug, Sep 20

Month	Date	Duty Pilot	Instructor	Tow Pilot	Notes
Aug	29	R BAGCHI	L PAGE	R CARSWELL	
	30	T PRENTICE	S WALLACE	P THORPE	
Sep	5	R WHITBY	P THORPE	D BELCHER	
	6	I BURR	R BURNS	F MCKENZIE	
Sep	12	C DICKSON	I WOODFIELD	A WILLIAMS	
	13	K JASICA	A FLETCHER	R HEYNIKE	
Sep	19	J DICKSON	R CARSWELL	P THORPE	
	20	B MOORE	L PAGE	D BELCHER	
Sep	26	S HAY	S WALLACE	R CARSWELL	
	27	K BHASHYAM	R BURNS	F MCKENZIE	