

WARM AIR 2 October 2021

Aviation Sports Club Gliding Newsletter

THIS WEEKEND:

No Flying this Week

www.ascgliding.org

Bank Acct 38-9014-0625483-000

Saturday

Instructing:

Towing:

Duty Pilot

Sunday

Instructing:

Towing:

Duty Pilot

MEMBERS NEWS

- *In Warm Air this Week;*
- *Club News*
- *Video Corner*
- *Our Avian companion's part 14. Human-powered flight. Jonathan Pote*
- *Roster*

Thank you for the contributions from members.

Club News

Event Date Changes

The committee met online last night to discuss upcoming events and plans for the month of October. Although we are waiting to hear on Monday the 4th October whether Auckland will go down to Alert Level 2 we have been reviewing the viability of some planned events.

We have decided to **postpone** the 9th of **October AGM, Start of Season Briefing and Working Bee**. We will set up some new dates as soon as we have more clarity on Alert Level Restrictions and Base safety requirements. *(I know some of you wanted to step up for committee roles. Don't worry there will still be that opportunity)*

Do you want to go!!! --- Labour Weekend, Matamata Sat 23rd Oct 2021

At this point in time, we are still intending to head to Matamata. What we would like to know from members if you intend to go to this soaring camp. Please advise our club captain Kishan kishanbhashyam@hotmail.com. We understand that this decision might be difficult to make in the current climate, however if we were in Level 2, would you go? We know things may change, but this will give us an idea whether to get everything organised to head south.

Base Restrictions

We are also seeking guidance from Base whether they have any additional requirements or operational restrictions at Alert Level 2. We will keep you posted.

If we are permitted to conduct operations, we will inform and remind you of the COVID health and safety requirements.

Reminder of other upcoming Events

Cross Country Course, Sat 23rd Oct 2021 - Wed 27th Oct 2021

For those planning on attending the XC course now is the time to register. Use either the Events tab on the GNZ homepage, or here:

<https://msc.gliding.net.nz/events/msc-cross-country-coaching-course-oct-2021>

2021-2022 NEW ZEALAND NATIONAL GLIDING CHAMPIONSHIPS

Hello All Contest Pilots,

Entries are now open for the 2021/22 National Champs at Matamata in January 2022. Early bird discounted entry finishes at the end of October, so get your entry in as soon as you can. Event and entry form link: <https://msc.gliding.net.nz/events/multiclass-nationals-jan-2022>

Also link to MSC Notice:

http://msc.gliding.co.nz/sites/msc/thumbs/2021/202109/7srwds23_940x940.jpg

We can guarantee a friendly and efficient competition with great soaring conditions.

Cheers, Bob Gray MSC

Reminder

Membership Application/Renewal - 1 October 2021 - 30 September 2022

Please find attached this year's membership form. All members are required to complete and return to either Ray Burns (ray.burns.ggl@gmail.com) or Lionel (lionelpnz@gmail.com). The PDF document is PDF Fillable. Which means you can complete it on your computer (which means we don't have to de-cipher some of the handwriting!). I recommend you save this to your computer, open the form and complete the first two or three fields then save the form. Open it a second time before completing so that you can be sure your entries have been saved correctly.

For those of you new to the club, we all need to complete this form each year. Our year runs from 1 October to 30 September.

Those under 26 in full time education: The fee structure is \$30 for membership and the \$25 communication levy. That is all. Your total subs are \$55.

While we are all locked down, now is the perfect time to get this completed and returned.

Many thanks,
Ray

**Derry flying out of Te Kuiti at the Vintage Glider fly in earlier in the year.
See the video below**



Video Corner

[Glider vs Paraglider. Getting Low. Twice... - YouTube](#)

Okay see Tim do some soaring out Matamata and onto the Hauraki Plains.
Get some tips.



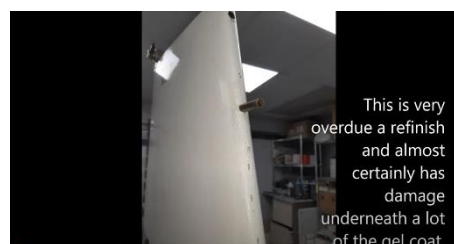
[Energy line training with Sebastian Kawa - YouTube](#)

A couple of year ago Sebastian Kawa did a tour throughout NZ Gliding clubs giving great lectures on soaring. Some were fortunate to fly with this multi- world champion. Here is a clip from Anton a Auckland Gliding club member and fellow competitor.

Energy Line Training
with
Sebastian Kawa

[When to refinish your glider - YouTube](#)

A subject dear to my wallet.



[Stripping a Glider Timelapse](#)

Okay this is the worked involved in a refinish of a glider.



Checkout this link on traditional glider simulator training. I think our club captain has some ideas on this.

[Glider Simulator Old School](#)



Our own Derry and Tony have some lovely video of their soaring ventures in Te Kuiti at Vintage Kiwi 2021

[Gliding at Te Kuiti NZ.WMV \(dropbox.com\)](#)

Thanks, guys, for sharing.

VINTAGE KIWI 2021
TE KUITI

Our Avian companion's part 14. Human-powered flight. Jonathan Pote



An unsuccessful start – Icarus falls to his death

It is a great pity that *Homo sapiens* cannot fly unaided, but there are clearly reasons. Some have already been covered: Birds can utilise energy faster than mammals can due to their ability to ingest and digest food far faster. Add to that their respiratory system which is well over twice as effective at providing oxygen to their musculature plus evolutionary development of a light but strong skeleton, loss of weighty body parts no longer required etc and clearly humans trail behind. That said, very fit human athletes (competition cyclists) in very light (and frail) craft have sustained flight under their own power for a while.

A fit human at 'full power' can produce about 125 watts or one-sixth of a horse power although Bryan Allen managed 0.35 HP to fly the English Channel. Unlike other powered aircraft categories (but unsurprisingly) no change of power plant is allowed! Pilcher hoped for sustained flight using just 4 HP, but was killed before he could try. The Wright Brothers managed with 12 HP and Blériot crossed the channel behind a 25 HP Anzani. The Convair B-36 'Peacemaker' post WWII strategic bomber was powered by six P&W Wasp Majors, each of 3800 HP. Found to be *underpowered*, four turbojets of five-thousand pounds thrust each were added..... Humans remain stuck with less than half a horse power.

As early as 1904, a 'flying bicycle' was made. An attempted take-off ended when a wheel failed, proving the adage that when a machine trials new technology, failures usually happen to the 'proven' components; a simple screw cross-threaded may cause a nuclear meltdown. More and improving HPA efforts led to the 1937 *Muskellkraft – Flugzeug* which flew over seven hundred metres, albeit after a bungee-assisted take-off.

1959 The Kremer Prizes

The vital incentive to progress was fostered by cash prizes offered by industrialist Henry Kremer in 1959. The initial prize was to be for a British pilot and aircraft to complete a figure of eight spanning half a mile. The subsequent prize was for a crossing of the English Channel.

1961 SUMPAC

The Southampton University Man Powered Aircraft (or SUMPAC) on 9 November 1961 became the first [human-powered aeroplane](#) to make an officially authenticated take-off and flight. It was designed and built by Southampton university students between 1960 and 1961 for an attempt at the [Kremer prize](#), but it was never able to complete the 'figure-of-eight' course specified to claim the prize money. The wingspan was 25 m, weight 58 kg empty, aspect ratio 21, VNE 21 mph and LD 36.

The pilot was Derek Pigott, one of the most famous British glider pilots. Here so many threads of this series converge: He trained with the RAF and volunteered to fly the military gliders covered in *Warm Air* some time ago. With 184 types of glider (and 153 powered aircraft) in his logbook, he was the ideal person to fly the replica of George Cayley's 1853 glider as well of several of the replicas used in *Those Magnificent Men and their Flying Machines*. After several flights he managed some six-hundred metres gaining 5 metres and an 80 degree controlled turn. His was a significant milestone.



SUMPAC

1962 Puffin

In 1962, Hatfield Man Powered Aircraft Club 'Puffin' (was there ever a more appropriately named machine?) built around a streamlined cycle frame attached to a twenty-six metre wing. The whole machine weighed only fifty-four kilograms and John Wimpenny, an aerodynamicist with the de Havilland Aircraft Company, managed a sustained flight of over nine-hundred metres. That record lasted for ten years, probably not a lot longer than the time it took for Wimpenny to recover! He was thirty-nine at the time of his flight, well past his potential physical peak (humans peak at age 22 on average – depressing isn't it).



(de Havilland) HMPAC Puffin

1973 Kremer II. Efforts so far not providing a winner, over a decade later Henry Kremer both increased the rewards ten-fold and opened the contest to all nationalities.

1970s The Adams Ornithopter. New Zealand becomes involved.

Ron Adams, a New Zealander living in England, conceived an ornithopter (flapping wing) bicycle combination, the wing of spruce, balsa and thin film (mylar). After some trials in England, it came to New Zealand by sea stowed within his VW Combi.

More (scooter towed) trials along a quiet road were followed by a motorcycle tow at Ardmore.

Despite it weighing under 20 Kg, the CAA was not helpful during this phase.

Following display at the MOTAT Pioneers Pavilion, MOTAT helped get permission for him to use Whenuapai. Even towed at 18 MPH, it would not fly (with fixed wings, no longer an ornithopter) although it was controllable. It was therefore presented to MOTAT by Ron in 1978. Unfortunately it is currently in store (if it still exists) and I can find no easily interpreted images of it.



Adams Ornithopter ZK-MPF



Adams Ornithopter ZK-MPF center section

1977 Gossamer 'Condor'

It was not until 1977 that the first prize was won. Dr Paul MacCready (sound familiar?) designed the 'Gossamer Condor' in which Bryan Allen pedaled/flew the required figure-of-eight over half a mile, finishing more than ten feet above the ground as required



Gossamer Condor

1979 Gossamer 'Albatross'

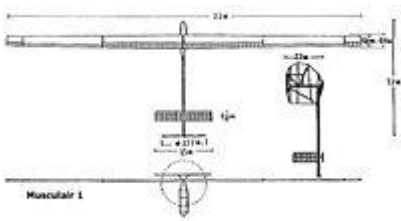
The second Kremer prize of £100 000 was for a man-powered aircraft flying from England to France, Blériot's achievement in reverse. Sadly the great aviation pioneer was long dead, but on 12th June 1979, the MacCready/Allen team produced and flew the *Gossamer Albatross* across the Channel – just. Allen seemed to have reached exhaustion but as the rescue boat positioned in front of him for a 'deck landing', he gained a little height and carried on to the beach. MacCready's design weighed just thirty-two kilograms, its wingspan was thirty metres and Allen pedaled for three hours to complete the thirty-six kilometers.



MacCready Gossamer Albatross

1984: Two-up

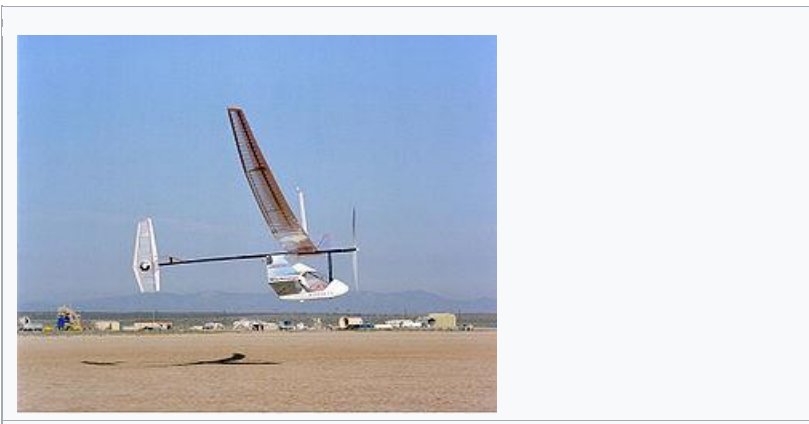
A human powered passenger flight was achieved in 1984. Günther Rochelt designed Musculair 1 and completed building it in 1984, allowing his son Holger to win two [Kremer prizes](#) for the flight over "the figure of eight" in four minutes and 25 seconds in 1984. In the same year, he set an HPA world speed record at 35.7 kilometres per hour (22.2 mph) to receive another Kremer prize. Later that year, Holger and his sister Katrin, at that time still a child, achieved the first passenger flight in a human powered aircraft.



Musculair 1, build by Günther Rochelt in 1984.

1988. The MIT 'Daedalus'

Members of MIT (the one in Massachusetts, not Manukau) built *Daedalus* with the aim of actually completing the flight that Daedalus and Icarus attempted in mythology, from Crete to the northern shore of the Mediterranean. Their effort was huge – Fifteen thousand hours of work with Kevlar and mylar produced an aircraft weighing only 31 kilograms. After tests on dry lakes in the USA, a take-off was made from Iraklion (Heraklion) airfield in Crete and *Daedalus* flew the 115 kilometres to Santorini island in three hours and fifty four minutes at an altitude of between five and ten metres, an extraordinary feat equated to two marathons back to back. The craft was so frail that as Kanellos Kanellopoulos flew along the black sand beach parallel to the water, the rising air over the hot sand lifted one wing and turned him out to sea. After a wet landing he had to swim back to the beach, but not unreasonably his effort was considered a success. The distance and time records still stand.



MIT Daedalus at Dryden NASA base

Meanwhile, further efforts in Australasia were at Auckland University in the 1980s and at Wigram where the '*Boffin Coffin*' flew under tow, but human power proved inadequate. Across the Tasman, an eight-hundred metre human powered flight was achieved recently.

1990 Airglow.

John and Mark McIntyre were involved in the '*Daedalus*' flight, and produced their own machine *Airglow* "just for the fun of it" without aiming at the Kremer prizes. *Airglow* proved very successful and durable, several 'flying cyclists' notching up dozens of flights. (One of those was Roger Warren. He is now leading a project in New Zealand hoping to enter the Icarus Cup in 2023). In 2010 *Airglow* was gifted to the Royal Aeronautical Society and has since taken part in the Icarus Cup competitions. It remains active as a flying test-bed for HPA improvements. As it is constructed in modules, it can test new propulsion or aerodynamic improvements in a scientific way.



Airglow airborne. Spare motor following.

The Sikorsky Prize for a Human-powered helicopter

In 1984, US\$ 10K was offered for a human powered helicopter able to take off and maintain three metres for at least a minute. Early attempts showed promise but not success. In 2009, the prize was increased to US\$250K and four years later was awarded to the *AeroVelo Atlas*.



The AeroVelo Atlas. This is a single machine, not a formation, with the heli-cyclist in the centre. The framework and drive mechanisms are too frail to be seen here. At least no horizontal movement was required, resulting in zero parasitic drag. Not a 'garage project'!

The current status of HPA

In 2012 the Royal aeronautical Society instituted the Icarus Cup (perhaps Daedalus Cup might have been more optimistic) with an annual competition at Lasham, a very active gliding field situated on a large wartime base in southern England. With the extreme sensitivity of MPA to disturbance, tasks such as un-assisted take-off, duration, distance, slalom, spot landing etc are set at short notice to produce winners in the specific tasks and overall. The machines dare not leave the airfield, but it is huge. It is hoped New Zealand can provide an entry in 2023. Roger Warren has grasped the gauntlet and is forming a team. There is also an HPA section in the FAI World Air Games, with Japan, Korea, France and the UK having entered.

The RAeS received further funds from the late Henry Kremer, and prizes still to be won are £50K for a 26 mile (Marathon) flight in under one hour and a 'Sporting and maneuverability' challenge for £100K.

Finally (bypassing Hang Gliders)..... HP gliders still surpass Human Powered aircraft, as one would expect!



The Ruppert Archaeopteryx.

The Ruppert Archaeopteryx 'man powered' glider is a production aircraft (20 built) weighing 54 kg empty, MTOW 190 kg, LD 28:1, span 13.6 m, stalling speed around 20 kts, VNE 70 kts. It is not experimental but a realistic form of human initiated flight.

jonathanpote47@gmail.com

Thanks again Jonathan.

Duty Roster For Oct,Nov,Dec

Month	Date	Duty Pilot	Instructor	Tow Pilot	Comments
Oct	2	A MICHAEL	I WOODFIELD	P THORPE	
	3	R WHITBY	R BURNS	R CARSWELL	
	9	C DICKSON	A FLETCHER	D BELCHER	
	10	K JASICA	L PAGE	R HEYNIKE	
	16	J DICKSON	P THORPE	G CABRE	
	17	S HAY	S WALLACE	F MCKENZIE	
Labour W/E	23	K BHASHYAM	L PAGE	P THORPE	Matamata
	24	K PILLAI	R BURNS	R HEYNIKE	Matamata
	25	G LEYLAND	S WALLACE	D BELCHER	Matamata
	30	I O'KEEFE	I WOODFIELD	D BELCHER	
	31	M MORAN	R BURNS	G CABRE	
Nov	6	T O'ROURKE	A FLETCHER	F MCKENZIE	ATC
	7	R BAGCHI	P THORPE	R HEYNIKE	
	13	T PRENTICE	L PAGE	P THORPE	ATC
	14	C BEST	S WALLACE	R CARSWELL	ATC
	20	E LEAL SCHWENKE	I WOODFIELD	P EICHLER	ATC
	21	R MCMILLAN	R BURNS	G CABRE	ATC
	27	A MICHAEL	A FLETCHER	D BELCHER	
	28	R WHITBY	L PAGE	F MCKENZIE	
Dec	4	C DICKSON	S WALLACE	R CARSWELL	
	5	K JASICA	R BURNS	R HEYNIKE	
	11	J DICKSON	A FLETCHER	P EICHLER	
	12	S HAY	S WALLACE	G CABRE	
	18	K BHASHYAM	I WOODFIELD	D BELCHER	

	19	K PILLAI	P THORPE	F MCKENZIE
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