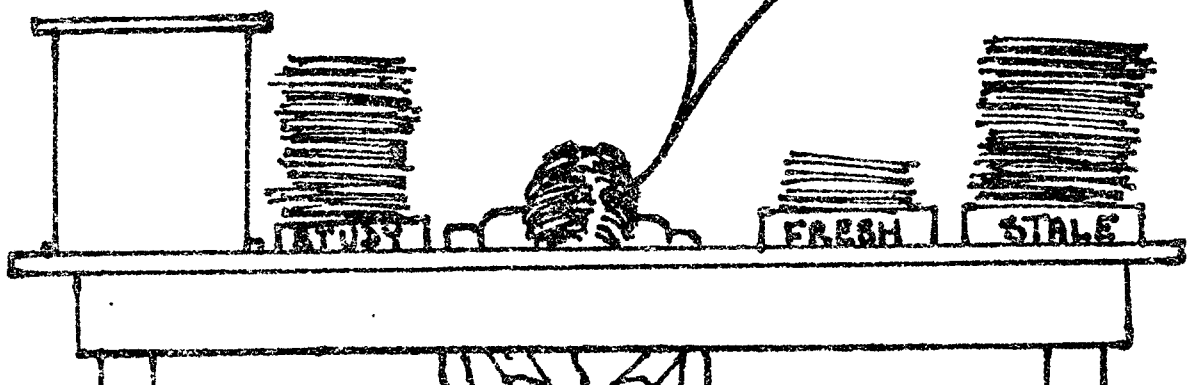


NOVEMBER 198

... And I was going to spend a lot of time creating a magnificent cover that was going to say more than just:

ADELAIDE UNIVERSITY GLIDING CLUB
NEWSLETTER
REGISTERED FOR POSTING AS A PERIODICAL - CAT. B

... but Auntie Amy was late handing in her column because she and her agent spent most of the month haggling with the Treasurer over an allowance for a manicure after typing her column and the Phantom refused to hand in a column because Guy won the Trophy for 'Phantom of the Year' so I spent hours trying to get him out of his cave to make it easier to reason with him but then Diana rolled up and neither of them has been out in days and since no-one else has written any articles I've had to copy some and write lots to tell you what is happening while suddenly my guest editor had to take time off to straighten out her children and exam time is only a fortnight away... **AUGH**



GUEST EDITORIAL

G*day Subjects,

I've been asked to address a few words to you. The time to sit down and do this doesn't come round very often what with the three boys still at home, the tea parties and all these ships to launch. Let me tell you that launching ships is not as much fun as it seems - do you realise that I have to clean up all the broken glass afterwards. As my good friend Dame Edna says I should follow in her superstar footsteps and get a more regular show on the telly. Two or three messages a year to the masses simply isn't enough to gain their respect. Anyway that's why I am here and this is much better than the weekly meet-the-people things done by that guy in Rome with the Polish accent.

Anyhow, I must stop chatting with Hoges so often, the place is quiet now so I can say a few things. The two youngest are out playing trains with the hubby. They enjoy it but it plays havoc with all the British Rail timetables. Chuck, the eldest, is out pashing up his latest girlfriend. One day he'll get one of them in trouble - at least then he'll have to get married. Mum's staying in one of the smaller family castles up in Scotland - she can't wash those big floors like she used to - her knees aren't what they used to be.

In this edition we have a story on the Gossamer Albatross. The story is by Jack Lambie who my husband and I met while on a secret holiday in California about 15 years back. We were walking on some of the cliffs by the sea when we ran into Jack and a few friends jumping off the cliffs with early generation hang-gliders. You see Jack was among those who re-invented hang-gliding. He asked us if we'd like to have a go. After a few jumps on some gentle slopes we moved on to more difficult slopes. Now my husband and I jump with the best of them and I've actually made a few cross-countries.

Maybe next time we're down in Aussie we'll visit your ridge. You will be able to recognise me because I'll be the only one wearing a tiara. Phil, the killjoy, won't let me take it off.

Another interesting article is the one on the Monerai. I'm told that it is the first of a series of three. Phil and Chuck (he picked that up in America) are actually building a pair of them out in garage in their spare time. I hope they finish soon because the Rolls do not take kindly to the weather. Anyway they are building them because our paycuts prevent us from buying ASW-22's and the like and Phil can't fit into a used Libelle and everything else is too expensive. Oh oh, looks like Anne has left home again. Got to go.

Well, it's been nice talking to

The triumph of Paul Mac Cready's

GOSSAMIER ALBATROSS

If you believe in portents, and if you had been around as I was when the *Gossamer Albatross* was conceived, you probably would have thought the signs for its future to be dark indeed. Of course, as it has turned out, the *Albatross* is a great success — the whole world now knows Bryan Allen was the first to fly Paul MacCready's second human-powered, ultralight flying machine from England to France over the English Channel.

The feat earned them Henry Kremer's whopping \$200,000 prize.

But that day back in 1977 when the *Albatross* was a-burning, the wind howled across Shafter Field and blew up the worst dust storm I've ever seen. We had driven 100 miles north from Los Angeles to Bakersfield one last time for a sort of farewell party for the *Gossamer Condor*. The *Condor* was Paul's first design and had won the original Kremer Prize, establishing itself as history's first successful human-powered aircraft ("Another Small Step," *Soaring*, Oct. '77). Paul was allowing many, including me, to fly the great wispy thing; I was hoping for another chance because my wife Karen and I would soon be hauling the *Condor* to the National Air and Space Museum in Washington, D.C. There the Smithsonian Institution was expecting to hang it in the "Milestone Aircraft" display along with the Wright Brothers' *Flyer* and other famous airplanes.

But going back to the dust storm at Shafter: It got worse and worse and flying was out of the question, of course. Finally we all left the field and hurried to the home of Vern and Maude Oldershaw. (It was after Maude had flown the *Condor* that Paul began describing it as human-powered rather than man-powered.) By the time we got inside the Oldershaws' house, the day was as night, all roads were closed, and power was out. Maude fixed a fine dinner and we huddled about the fireplace. Inevitably conversation turned to the next step in human-powered flight.

Bryan Allen had flown the *Condor* around the Kremer circuit in seven and a half minutes. But it was a strenuous effort for him, even though he was a professional cyclist. Paul and Vern knew that if HPA power requirements

could be reduced to .25 hp, a physically-fit person like Bryan could fly for hours instead of minutes. At that level, the time versus power output for humans is almost continuously achievable.

Oblivious to the storm outside, Paul and Vern went over structural data by candlelight. Each pound of weight taken off the airplane meant three-quarters of one percent less power needed. Carbon fiber could be used for the main spars and foam instead of aluminum for ribs. That would save probably 15 pounds and bring the *Condor* down to 55 pounds. At that weight an HPA could fly at only .3 hp — a bare .05 hp short of the magic .25 hp needed for sustained long-duration flights. But it seemed impossible to make the 96-ft. span *Condor* any lighter.

Paul turned to aerodynamics to make up the difference. He showed that reducing the wing area, using a stiffer wing with less wire bracing, and a more accurate airfoil could mean an increase of 30 percent in lift without an increase in drag.

More computations in the flickering light.

The lighter weight, the better airfoil, the smaller area, and higher aspect ratio would do it! The age of almost indefinite human-powered flight would be upon us! It was so exciting that although it got darker and darker outside, we didn't notice. . . .

After taking the *Condor* to Washington, I worked on a TV documentary titled "The Winds of Kitty Hawk." I spent several months helping build and test fly Wright replicas, refurbishing a 1909 Curtiss pusher, and doing whatever else was required of me. Because of this, I wasn't able to get initially involved with the new machine. Paul had gone to England to receive the trophy from Prince Charles and the prize money from Henry Kremer. To his delight he learned that a new Kremer prize was being offered for the first HPA crossing of the channel from England to France. The details of the rules had been finalized during the time I was working on the TV film. As was the case in the original Kremer circuit, the development of the task and its super-

vision and administration fell once again to the Royal Aero Club.

With the "Winds of Kitty Hawk" out of the way, I was able to help with the new HPA, but a series of events delayed progress: The prototype *Gossamer Albatross* had been built, but it crashed and was badly damaged because the control system had not been properly developed and control wires had jammed, resulting in an uncontrollable turn into the ground. Then permission to use the Shafter hangar was lost when a commercial operation took over the lease.

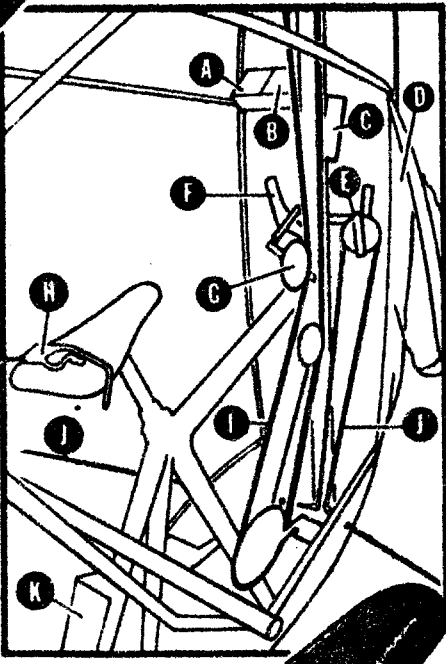
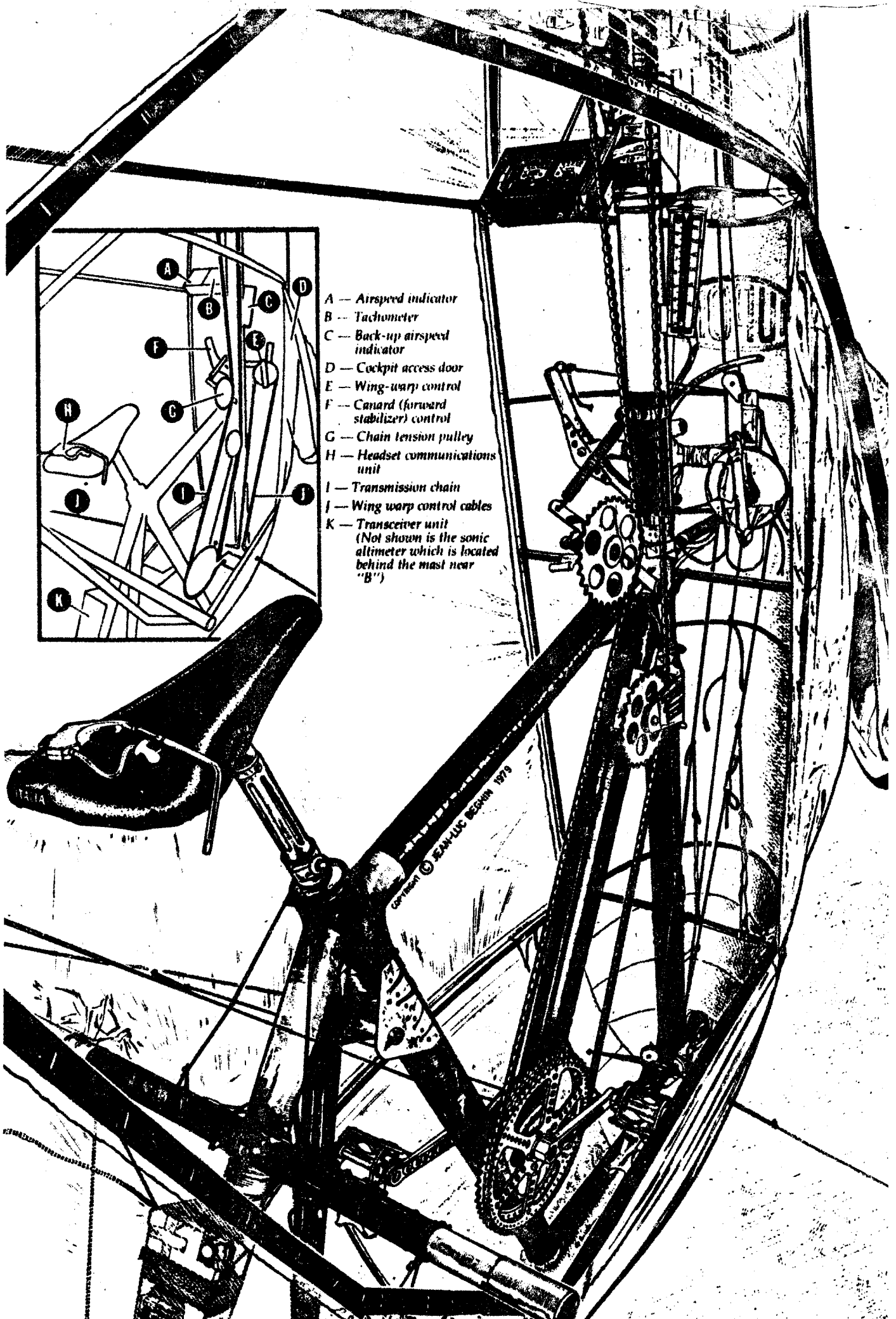
It was decided to take the injured *Albatross* to the little beach shop of Kirk Leonard, Paul's brother-in-law. Kirk lives in the Los Angeles area, so Bryan and I loaded the partially-repaired plane into another big diesel rig and drove south.

On the way down we talked about the future of the project. Bryan was discouraged — no place to fly the plane, the loss of the hangar, the many hours of repair work ahead. And none of the "old gang" were working on the *Albatross* — aerodynamicist Peter Lissamen was working with Bill Mouton on a huge propeller/turbine to harness Gulf Stream power, Vern Oldershaw was busy with a new ultralight. The days of fevered cut-and-try, build-and-discard testing were over. A new kind of skill was needed. . . .

However, things gradually picked up. The basic *Albatross* design was frozen and the engineering and construction skills of erstwhile HPA builders Bill Watson and Taras Kiceniuk were combined with Kirk Leonard's vast knowledge of composite materials. "Lighten and streamline, simplify and strengthen" became the operational words.

A new flight-test site and hangar were found: An old Navy field on Terminal Island in the Port of Los Angeles had become an off-loading staging center for imported cars and was also used as a training track for L.A. police vehicles. It was available and there was room for flights of a few hundred yards. This served the purpose; a superb still-standing steel hangar was especially useful.

There was other good news: The cost of taking a major modification to the



- A — Airspeed indicator
- B — Tachometer
- C — Back-up airspeed indicator
- D — Cockpit access door
- E — Wing-warpage control
- F — Canard (forward stabilizer) control
- G — Chain tension pulley
- H — Headset communications unit
- I — Transmission chain
- J — Wing warp control cables
- K — Transceiver unit
(Not shown is the sonic altimeter which is located behind the mast near "B")

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learned as large a challenge as building the aircraft. Fortunately, the Du Pont Corporation (maker of the 'Albatross' mylar covering) offered to sponsor the project to the tune of \$200,000. This transformed a shoestring hope into a substantial operation and made it possible to include two backup 'Albatross' vehicles as well as solid logistic support in terms of a working base in Britain, transportation, channel communications, escort vessels, etc.

The rules announced by the Royal Aero Club proved quite feasible. Takeoff could be from any place in England as long as the height was not greater than 50 meters above the channel surface. (This was supposed to eliminate any possibility of someone launching from the Dover cliffs and soaring across on upcurrents.) The obvious departure point would be Dover since a landing at Cap Gris-Nez would be 22 miles away and require something over two hours in still air.

Not that engineering problems had ended. To reduce the size of the canard surface, a longer boom was extended in front of the wing — and snapped just after the first takeoff. Back to the old design.

More disturbing was the 'Albatross' first try for a long-duration flight. The aircraft was taken to a remote dry lake in the desert where Bryan took off swiftly, climbing to his usual 3 to 5-foot altitude. After only 18 minutes he landed in exhaustion so total he almost passed out! It was the longest HPA flight in history, but no encouragement for a plane intended to fly over two hours.

Back at Terminal island, Paul decided to go over the entire airplane to see what was wrong. He soon learned its weight had increased from 55 to 70 pounds. This was traced to repairs necessitated by three crashes. 'Albatross' #2, identical in span and construction, also had gained weight due to reinforcements in those places found to be weak in #1.

'Albatross' #3 was a different machine altogether. With only a 75-ft. span, it was the "racer," and was intended as an alternative in case conditions over the channel proved too windy and turbulent for #1 and #2. But after Bryan's aborted 18-minute flight, MacCreedy was worried.

"I now think #3 was a mistake, Paul said. "I thought from our earlier tests at Shafter that we had performance to spare and could fly a smaller plane. Now it's obvious that everything must be just right to meet that .25 hp requirement."

The team worked quickly. The fuselage was rebuilt, faired, and neatly recovered. MIT's Professor Gene Larabee and his students provided coordinates for new, more efficient props. Paul and Henry Jex adapted a design which Bill Watson quickly put together. It was similar to an old Hamil-

ton wide chord toward the shaft instead of the current rectangular blade. Paul and Henry's analysis had shown the old wide tip was moving so fast that it presented too much area to do its job; rough checks on a scale showed the new shape could get the same rpm with less pedaling effort.

The sophistication and level of workmanship of the new group of builders should be noted. Bill Watson skillfully wrapped thin sheets of prepregged carbon fiber around 3-inch aluminum tubing, added strips top and bottom for beam strength, and covered the entire layup with a winding of shrink plastic tape. Then the tube was inserted in a long oven and baked for 30 minutes at 230°F. Next, it was taken out, the shrink tape split off with a razor, the tube then put in a plastic irrigation pipe with capped ends, and swimming pool acid poured in. Within 20 minutes all that was left was a featherweight tube half the weight and twice the strength of the original. Foam plugs were inserted in the tubes to aid buckling resistance, and finally, the ends were filed and fitted together and bound with fiberglass wrappings at the joints.

Each of the four wing panels of the 96-foot span now weighed only 6 pounds, yet they were so stiff I could pick a panel up at one end and hold it with my hands only a foot apart.

At first glance the 'Albatross' fuselage looked similar to the 'Condor's. But the slight recline of the 'Condor's seat was abandoned in favor of a more conventional bicycle riding position. For short flights of 10 minutes or so the differences in sitting back or upright were minimal. However, for long tests of endurance, the human body was apparently designed to have its best breathing and muscle articulation in the vertical position.

'Albatross' instrumentation was more sophisticated, too: A sonic altimeter (adapted from a Polaroid self-focusing camera component) measured altitude in inches; an electric airspeed indicator, equally precise, was run by a transducer driven by a plastic propeller used by meteorologists. A tachometer to register pedal rpm's was used because it was found that pedaling the 'Albatross' is similar to pedaling a bike — but there could be no speeding up or relaxing as on a bike. A steady power output was essential. Too fast meant higher drag; too slow meant sinking. Lastly, there was a radio for Bryan to talk with the crew. On the channel flight it would be important to assess the pilot's condition, warn him of ship traffic, or, if necessary, prepare for rescue.

Arrangements had been made to ship the three 'Albatrosses by air in an RAF Lockheed C-130 that was deadheading from Nellis AFB near Las Vegas. But as the time approached, no long-duration flight had yet been completed. The scheduled 18-minute flight

was still the best that had been done. Just before the scheduled departure for Britain, the cleaned-up 'Albatross' #1 was taken once more to the remote dry lake in the desert. There would be no time for further fixes. This time had to be it.

I wasn't able to trailer out to the site, so with a friend I left Chino Airport in the L.A. basin at dawn and flew at 150 mph in a small plane toward the desert rendezvous. Five miles from our goal we saw a flash of mylar and a dark speck (which proved to be the ship's car and trailer) moving with it along the white lake bed. The 'Gossamer Albatross' was already aloft!

In minutes I was above the softly flying machine. I had the intense sensation of being in an ocean of air and watching a giant fish swimming below us. With the slowly spinning propeller and the glittering, flexing, floating wings, it seemed like a monstrous aquatic creature gliding over a lake bottom.

The sun had just come over the horizon as we landed on the smooth alkaline surface. The operation's GMC motor home, which had been slowly trailing the 'Albatross', stopped long enough for us to run from the plane and climb aboard. Sam Duran, Bryan's roommate and operations chief during the test flight, was talking by radio to Bryan while he flew. Allen sounded unwinded and calm though he had been aloft fifteen minutes already.

The rays of the morning sun were scattered and polarized into iridescent colors by the mylar covering, but the plastic was taut and shone like a sailplane wing, so accurately was it shaped. I remembered forming each foam sheet with a heat gun and shoving it down into the female mold to keep the airfoil precise enough to gain that extra lift and low drag.

At the end of the lake Bryan made a jaunty turn and started to retrace the 7-mile distance he had just flown. He did this while steering with one hand and adjusting the earplug on the radio. What a difference from the 'Condor! His legs seemed to be gently stroking the pedals, so easily did they move. No frantic pumping. Just a steady powerful effort that could be seen in the shaking foreplane as the pilot thrust himself through the air.

Man is actually flying. I told myself, really flying. Not struggling to simply stay aloft. Not staring grimly ahead while he pours his energy forth. Bryan was looking around, waving, watching us take photos. I could at last easily picture something I could never envision before — actually flying across the channel! Of course it can be done!

A quick look at my watch. An hour had gone by! The 'Albatross' clear plastic was fogging slightly with Bryan's sweaty heat. He headed for the assembly area at the lakeside and gradually, ever so gently, touched down.

flotilla changed course, adding distance to the goal at Cap Gris-Nez, but minimizing the chances of flying into a band of swirling turbulence that would not dissipate for a long time in the calm morning air.

Then, bit by bit, the true difficulty and drama of the crossing began.

The late start resulted in an earlier-than-expected encounter with a headwind — really little more than a zephyr by normal standards, but a headwind to the *Albatross*, nonetheless. Soon the transparent cockpit turned almost opaque with condensation from Bryan's perspiration. A droplet fell into the radio switch. It stopped transmitting, though Bryan could still receive. Then the altimeter quit. Anyone who has flown low over water knows how difficult it is to judge height above its surface. Taras Riermiuk began radiating altitude to Bryan, but at times the *Albatross* dropped within a half foot of the now-rolling ocean. The rising waves were breaking the smooth laminar airflow just above the water's surface and the wings began to lose lift to turbulent puffs that nudged the air from its straight path across the airfoil. It was obviously taking a great deal more power to stay airborne. Bryan was tiring.

This had been anticipated. As a last resort it was prearranged that Bryan would raise his right arm when he felt a landing at sea to be imminent. To avoid this, and as a last-ditch effort to save

the aircraft, he would then use his remaining strength to climb high enough for the crew of an inflatable boat to move under him, attach a light line, and then, hopefully, tow the *Albatross* on to the shore.

Bryan raised his arm.

Watchers saw his pedaling rpm speed up. During earlier test flights he had snapped the super-light carbon fiber tube propeller shaft when he over-powered on takeoff. Could he chance it again? He thrust his legs harder. The shaft held!

As the *Albatross* climbed, the rubber boat moved to slide under its keel. Suddenly Bryan shouted. "Give me five more minutes!" Surprisingly, the higher air was smoother, but after an hour his legs began to cramp. He favored one, then the other. The crew watched the agonizing struggle and gave what encouragement it could. Would he "gray out" as he had during the aborted desert flight? On and on he went, sweat-drenched, legs pumping inexorably despite pain and cramps. Would France never appear . . . ?

Bryan saw it before anyone. A thin line of whiteness ahead. Was it the beach? The surf? He gritted his teeth. Somehow feet, calves, and thighs became mechanical pushrods, responding not to intelligence but to the consuming will of Bryan's entire being.

Shouts. "Come on Bryan! Come on!"

Sam Duran in the lead boat had seen the beach, too. The flotilla began speeding up to put photographers ashore.

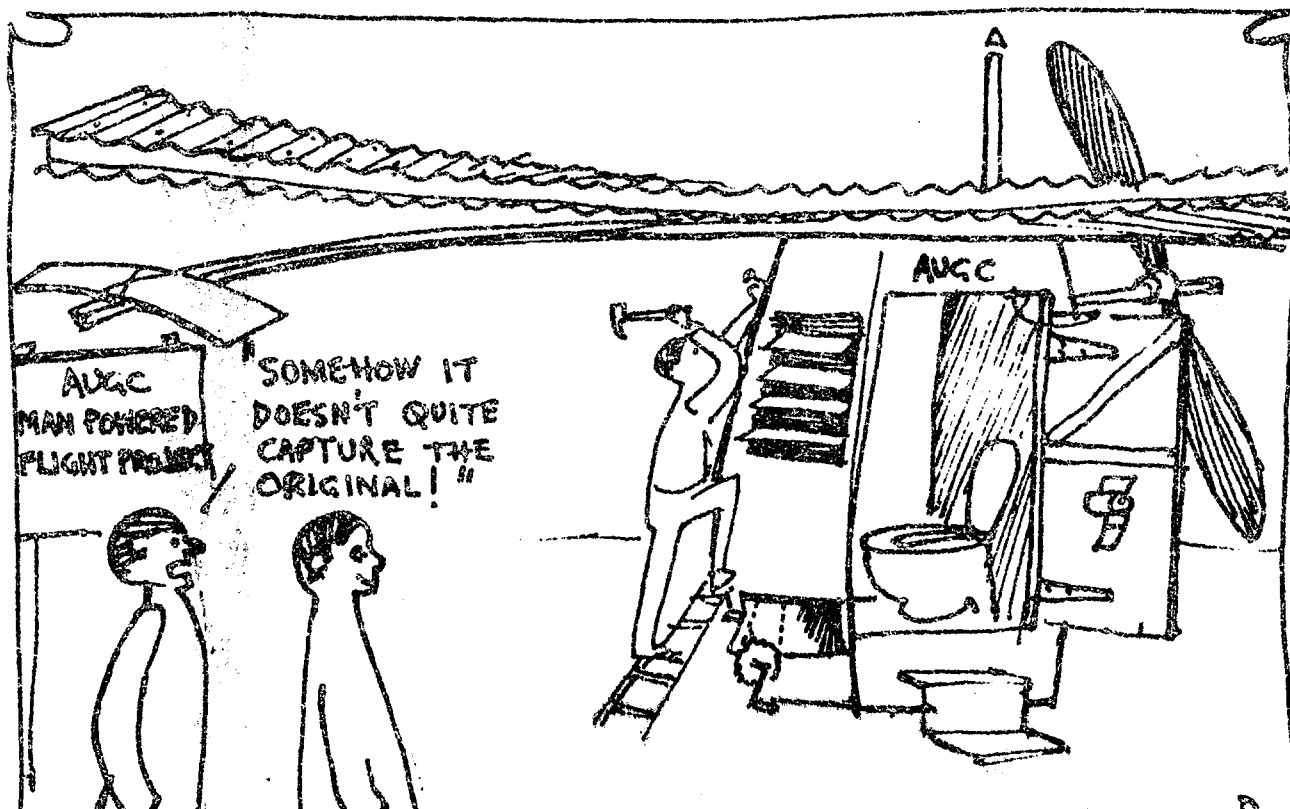
By the time Bryan skimmed over some craggy rocks and onto the wet sand in front of old WWII fortifications, a crowd had already begun to assemble. Movie cameras, photographers, and TV crews trained their lenses on the *Albatross* as it gently touched the continent on the shores of France.

Although Bryan was almost incoherent with fatigue when project manager Sterling Stoll pried open the velcro-edged cockpit panel, he managed to snap back and talk with reporters and the growing number of local French who were giving him a hero's welcome.

In the crunch of people, the carbon spar of one wing was damaged, but it was easily repaired, permitting Bryan Allen, the *Cossamer Albatross* #1, Paul MacCready, and the team to accept an invitation to the Paris Air Show. Plans for this prestigious event are made long in advance, and invitations to small exhibitors are not easy to come by. I think the acceptance of Paul MacCready's *Cossamer Albatross* is a true portent. Another step — a bigger step — in the journey toward personal flight has been taken. One day we shall all have wings on our heels.

As a participant working on the frontier with the *Condor* and the *Albatross*, I feel especially fortunate and honored. It was a rich adventure for me, too.

SOARING August 1979



CLUB DINNER

Monday, October 20th, rolled around and tension mounted as the appointed hour for the first ever Club Dinner approached. But then we started asking: "What is the appointed hour?" Some thought that Sandra had said 7.00 while others distinctly remembered Guy saying that those who arrived after 7.15 would have to lick the Ka-6 clean next time they were on field. But Mark had clearly and very precisely mumbled something about it being crass to have dinner before 7.30 p.m.

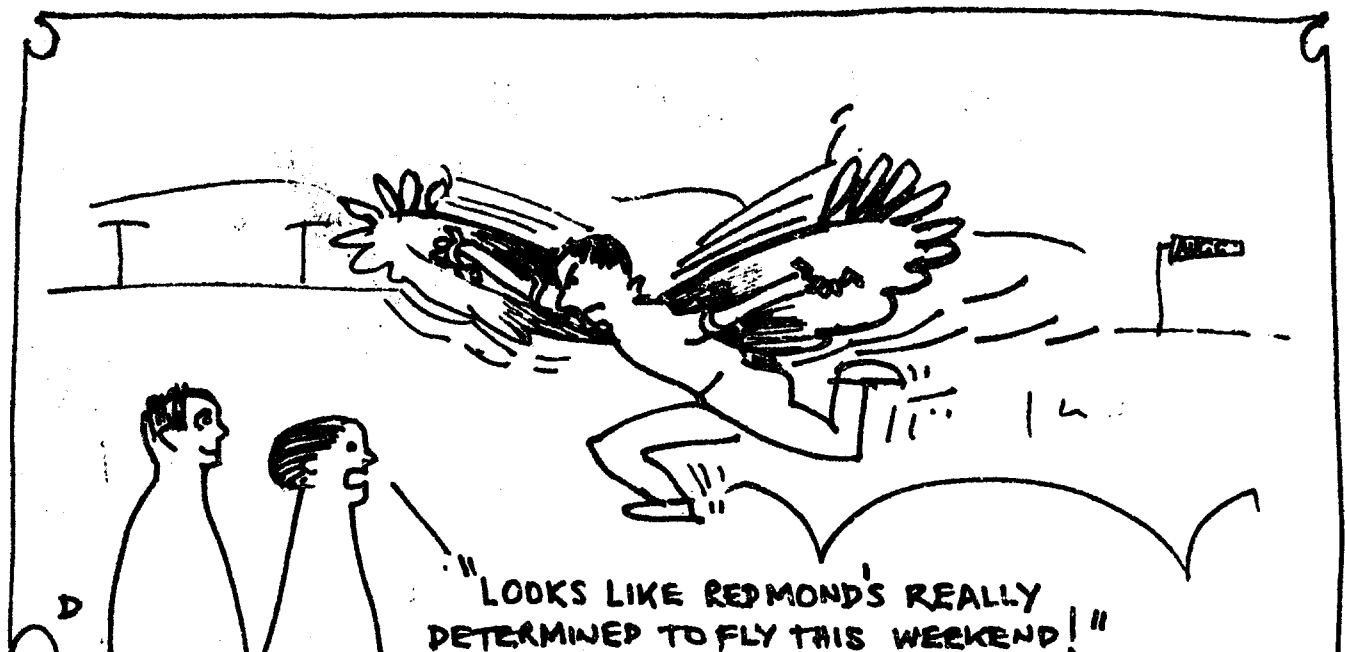
Eventually everyone rolled up at the appointed place by some semblance of a reasonable hour - except for Guy. If Guy is a little quieter than usual at the next meeting you will know that his tongue has still not quite recovered.

The Bistro staff had reserved a long table for us away from the hustle and bustle of the other five diners in the place. The night then preceded in a pleasant, orderly fashion except for the time we decided to adjourn to the Bar. Sandra, even though quite sober, got carried away and, to her credit, remained cool, calm and collected. As we moved around later in the evening to the British and within the British she demanded that she get carried away again.....

As is usual at our gatherings around this time of the year the 'Club Awards' were announced. These recalled some of the more interesting moments of the last year. Congratulations go to the winners of these prestigious awards:

The Social Member of the Year

-Redmond Quinn for being on field so often without flying.



The Greatest Disappearing Act of the Year Award (incorporating the Now You See Me/Now You Don't Award):

Nominations: The person/people who continually steal the pegs and rope from the Bocian and Arrow.

Emilis, who disappeared from his job to compete at Rose Week at Benalla, Mildura, Leeton and Horsham.

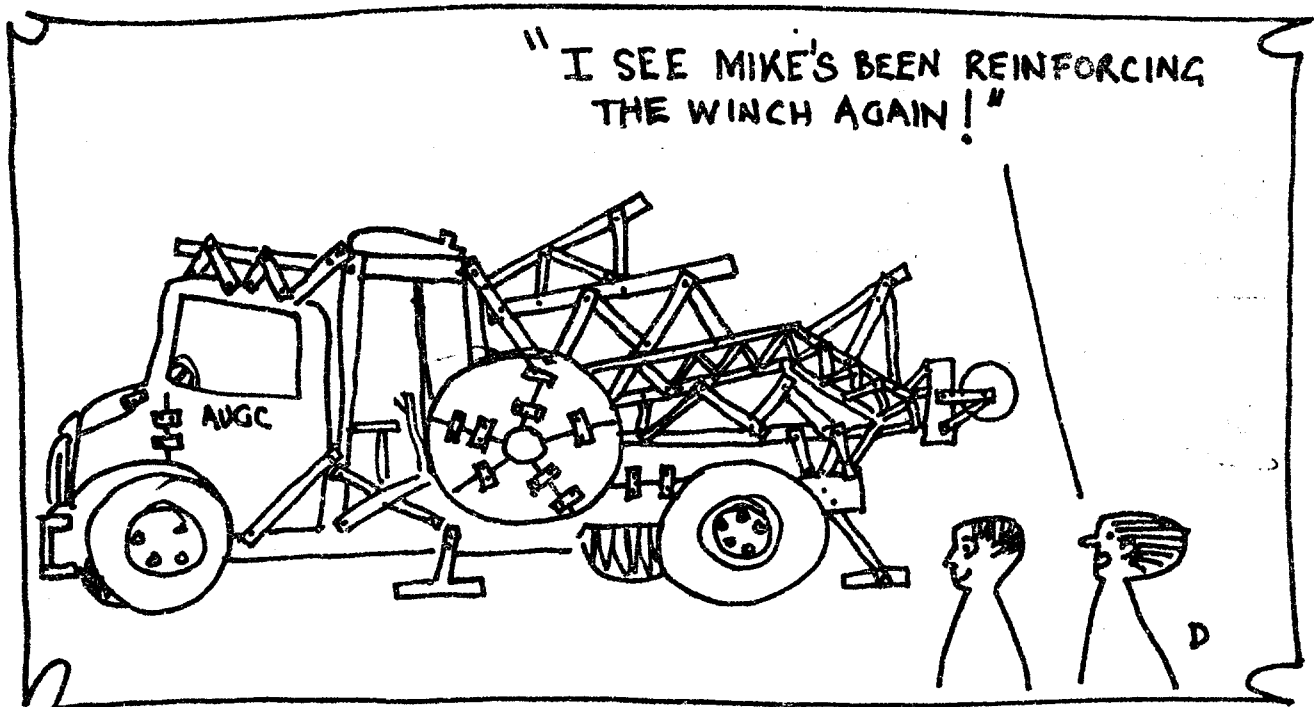
Winner: Roman, for the time he took off in the Arrow and was next seen pulling up behind us in his Honda outside Mark Forster's Place.

Strangest Relationship of the Year Award

Last year's nominations included Graham, Kate and the Sagitta and Emilis, his mum and the Kookaburra and last year's winners were Kim Bennett, his wife and the winch because Kim was seen servicing the winch in front of his wife.

This year's award has to go to Mike Barnden and his wife, Jill. There are two reasons for the award going to Mike and Jill:

- 1) She still married Mike after seeing him play around with and service the winch. Perhaps she appreciates his mechanical bent because:
- 2) One morning soon after they were married we rolled up at Mike's place to take him gliding. He looked tired and said that he would come up later. He explained that he had been working on a vacuum cleaner until midnight.



Magical Mystery Tour of the Year Award:

-David Ellis for his very unexpected but very exciting travels

Flight of Fancy of the Year Award:

Nominations: Graeme and Roman for going to the ridge and stay up when it wasn't working.

Tony for landing out in the Bocian because it didn't fly like the Cirrus.

Winner: Peter Ashenden for landing out in the Bocian while actually flying the Arrow.

Last year we presented the Presidential Trophy which went to Dave Ellis for being President. But, of course, we want to be fair share things around so this year we are proud to introduce the **Fifth Member Trophy** which must go to Mark Forster for being FI (Fifth is a very precise medical term - for an explanation ask Graham, Graeme, Dene or one of the doctors on 9B at the QEH).

Father and Son of the Year Award:

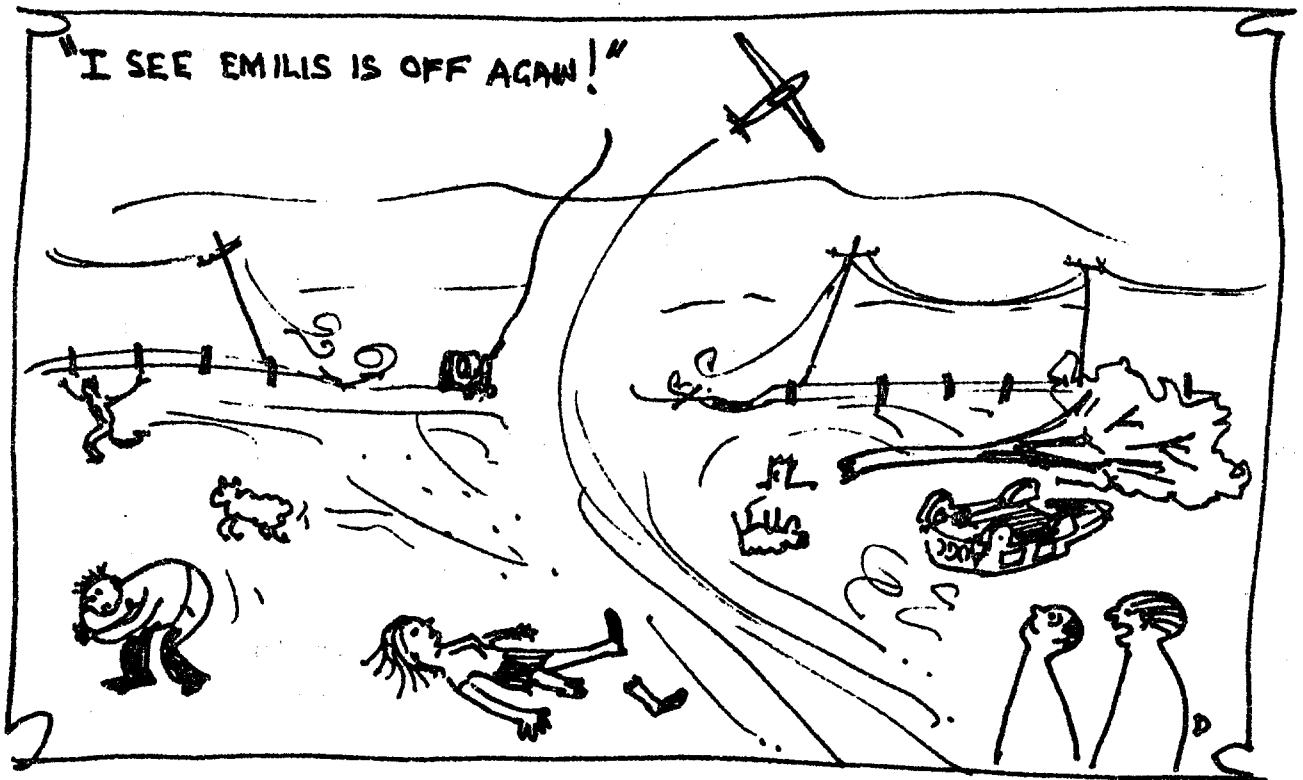
Graeme and Mr Newcombe for their efforts in trailering the Arrow around and storing it (especially at O-week), for having the Arrow at their place several times so that it could be worked on, and for looking after the Boomerang just recently.

Mechanical Marvel of the Year Award:

Nominations: Mike Barnden for his rising arms

Dave Biggs for his unusual exhaust system

Winner: a joint award to Emilis and Sandra for finding and perfecting a breaking system in the Bocian wing.



Happy Hoaker of the Year Award:

Dene Hein for his little affair with twin cables late last year.

At this point we should point out that this year we had only one pupil to go solo who could win a '10 Award' and all Mark could give Sandra was a 5.

Verbal Diarrhoea of the Year Award:

An honorable mention has to go to Guy for being the only person in the world who can say "But we must not waffle on" twice and separate them for 5½ minutes with reasons why we should not waffle on, how we could avoid waffling on and what would happen if we did waffle on.....

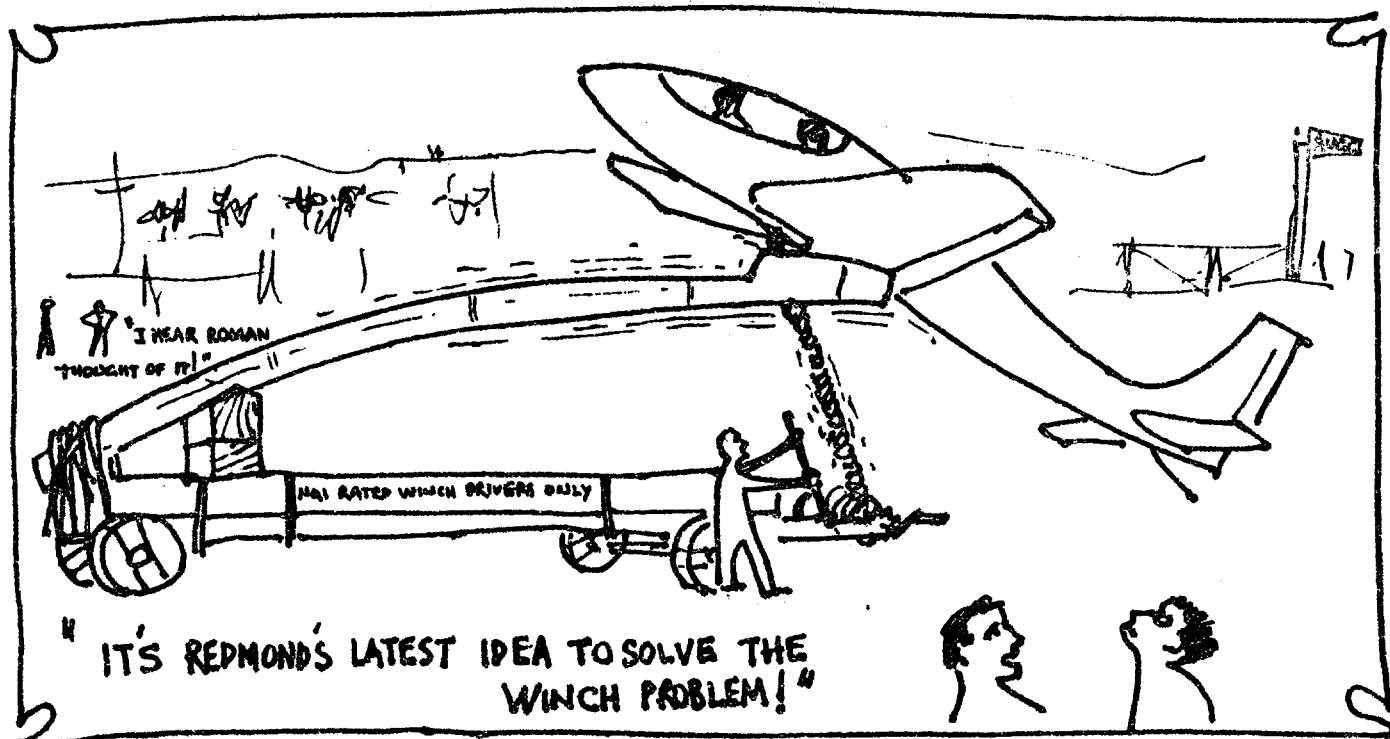
Winner: Chris Markovitch for his efforts in furthering our understanding of the feelings, processes and actions involved in defaecating into a hole on top of a sandhill.

Phantom of the Year Award:

Guy Harley - if you know why Guy received this award there would be no point in awarding it to him.

Most Passenger Flights of the Year Award:

Dave Biggs - whenever Dave appears on field it is with a carload or two of friends who want passenger flights.



Most Subtle of the Year Award:

Sandra Sawyer and Mark Forster for taking the kids with them on the Friday night before the Regatta to the shearers quarters.

The Fulfillment of Prophecy of the Year Award:

This special effort award goes to Tony Kiek who, after reading the Phantom's prediction about flying from his backyard, went and

Most Outstanding Person of the Year Award:

Nominations: Kate (last year's winner)

Sandra Sawyer

Sharon Quinn

Girlfriends, wives etc. of the hang-glider pilots.

Winner: Graeme Newcombe - for his effort in refilling his glass
with an amber fluid (photographic evidence by Graham Parker)

The Quickest Solution of the Year Award:

Nominations: Andrew and Sandra for their ready solutions to
people's pangs of hunger.

Redmond for just happening to have some snow-chains
the boot on a day that would have otherwise been
cancelled because of the mud.

Winner: Tom Nemeth - For years we have been wondering how to get
power to the field and how to power the winch. Tom
solved all these problems on one flight with one
spark of imagination. With that flight he also won
"Most Electrifying Moment of the Year Award".

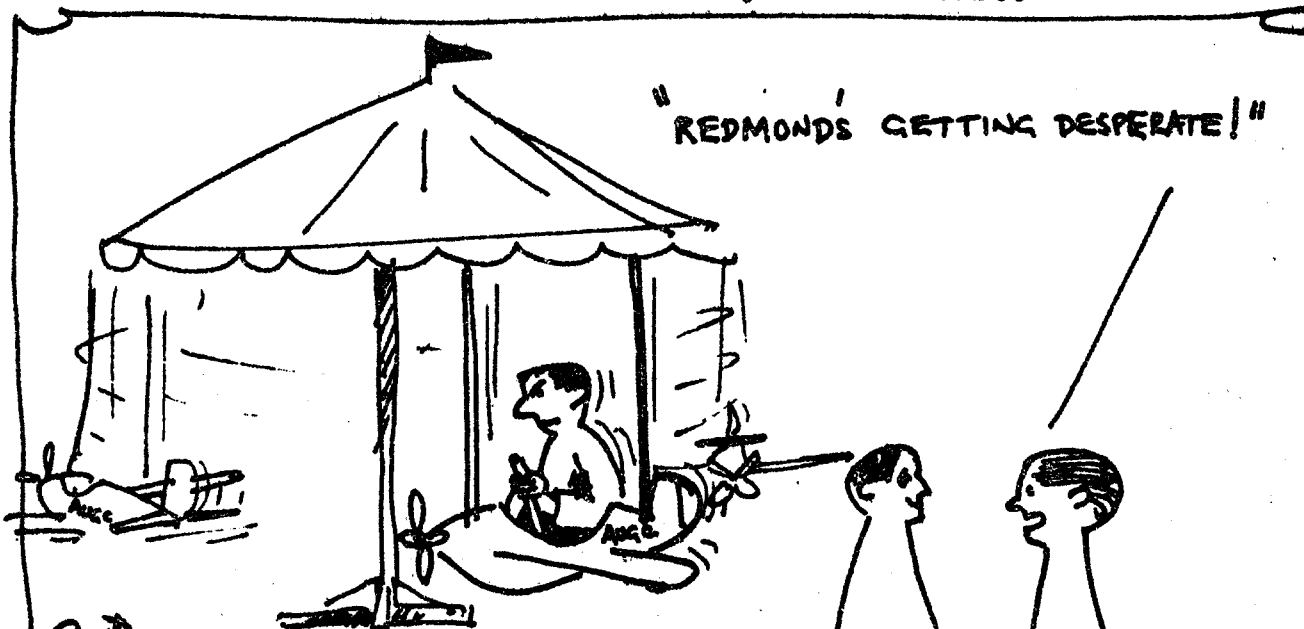
The same flight also gave Mark, who was on the winch, the
chance to win "Bright Spark of the Year" although some say
that he would have won it anyway.

The Give Up In Disgust of the Year Award:

Nominations: Emilie giving up on the club so many times

Guy walking out on Sports Association Meetings.

But the most novel and creative(??) and, hence, winning entry came
from Guy. We've all heard stories of golfers missing a putt and
then throwing their clubs away in disgust - but, apart from Guy
have you ever heard of a sailplane pilot who threw away his
aircraft just because he landed out in a contest.



Most Seductive Pupil of the Year:

Nominations: Sharon

Sandra - with Emilis, but she got too broken up
over that.....

Winner: Kate - the only pupil who got engaged to her instructor.

Most Creative Tangle of the Year:

We had a good year relatively free of tangles but then Mark came in with a superb, very creative last minute entry that had the following outstanding features:

- the tangle went all over the place
- he wasn't even laying cables or launching at the time
- the whole effort occurred in front of all the visiting pilots at the Ratbag Regatta.

(See Auntie Amy's Column for more on this epic venture)

The Three Inches Higher of the Year Award:

Nominations: Don - for his hook-up episode

Roman - for some of his landings

Chris Dearden was asked to score these on his Pucker Factor Meter. He added some nominations of his own and gave the award to Graham Parker for the time at the Mildura Competition that Chris followed Graham into what was supposed to be the gliding club's airfield but what was actually Mildura's Airport (with Fokker Friendships, tarmac, lights and all). A quick about-face to the gliding field had both of them tightening their pukker strings.

Later Redmond decided that we should have:

The Most Ambiguous Direction of the Year Award

-this was awarded to Mike Barnden for his immortal words from the back seat, "Turn that way."

Again, congratulations to all the winners for their fine efforts.

A plea goes out to all members of the club to submit any suggestions for next year's awards. Any unusual, silly or "clever" acts or incidents should be recorded. Please pass the details on to me.

Dene



AUNTIE AMY'S COLUMN

Dear Emilis,

Well, not meaning to be bitchy, I know what you mean. It's not just the way the phantom's column depicts our beloved leader as a magnificent creature, but more the way I am shown as a dizzy ballet dancer complete with tu-tu etc. (excuse me while I adjust my jock-strap)

Dear Auntie,

There is some speculation in the club, as to your true identity. Would it be too much to ask for just one small clue?

Yours, Wondering.

Dear Wondering,

Catch the 520 bus into Adelaide, catch the Bee Line to Victoria Square, pop into the 'Sultan of Swap' where you'll find a rather dusty 1942 edition of the Guinness Book of Records. Open it's dusty covers, (explaining to the enthusiastic salesman that you're only browsing), turn to page 153 and tear out the bottom corner, (tell the salesman you're only browsing). Pop into the next section and hold this piece of paper up to the vanity mirror on the Queen Anne dressing table by the light of a burning candle. This will give you a series of letters written backwards. Pick the fourth line down and 13 letters to the right. This should give you absolutely no clue to my identity.

Dear Auntie Amy,

The other weekend at your Ratbag Regatta, some friends and I from the Bog-A-Duck gliding club were rigging our glider amidst the informal, but mounting spirit of competition. Suddenly, a frenzied, shrieking figure, wearing what was left of an obsolete winch, shattered the morning silent tension with screams of rage, as he wove the last pieces through the quickly disappearing crowd, trailing an array of oddments across three paddocks, which would have been the envy of

was, in fact, only assembled 2 1/2 hours before this entertaining feat, 1000 pieces brought from all over the country. Would it be possible to hold these 'Demolition Derby' events on a regular basis, so that next time we can leave our gliders behind and bring the kids?

Signed, Bloodlust

Dear Bloodlust,

Unfortunately, I was on a couchmer leave at the time, so I missed the event. However, my enquiries have brought to light that this premeditated 'letting out of cable' was in fact a direct defiance of our C.F.I.'s rules. The end of the cable was eventually traced to the gate of 'Eob's Place' and hence contravenes the rule about tying the cable only to proper tie-down pegs.

Mark only wanted to break Tony's run of winning the 'Tangle of the Year' Trophy! Perhaps Mark wants to be CFI

Dear Auntie Amy,

This is my last and final plea, unanswered from last time. HELP!!!! Desperate

Dear Desperate,
Are you in trouble?

Dear Ms. Biggles,

I think you should advise your readers that connection of your clubhouse to our system should take place preferably after the club-house has been built. The novel Swer-line recently connected, falls a little short of E.T.S.A. requirements. Do you get my drift, or did we get yours?

Signed, E.T.S.

Dear Mr. E.T.S.A., (what a funny name) Why-er- -- WATT a shocking fuse on such a CURRENT event. We have had AMPLE transmitted on this reVOITIN subject, now you make fun of our 'OLM on the range'.

MONERAI

JOHN MONNETT'S
MONERAI

Reprinted from "Free Flight"

This summer I visited the mecca of the homebuilder; Oshkosh, Wisconsin, to look over the homebuilt powered sailplanes featured at the 26th Convention of the Experimental Aircraft Association.

Two models were on display, John Monnett's Monerai and the American Eaglet. In addition there were many powered hang glider designs although, in some cases, this is something of a misnomer as the 'hang' has given way to seats and tricycle gear!

Forums (open lecture/discussions) were presented on both the Monerai and the Eaglet.

Design

The Monerai is a modern looking design with a span of 34'-6". The model on display was the prototype, the production kits have a span of 26'-0".

The wing spar is an unusual design in that it is a modified "I" beam aluminium extrusion which is 5" high and 3" wide at the root, tapering to 5" by 3/8" at the tip. The machining is carried out in the factory and the spar is shipped ready for use. The spar comes complete with extruded and milled fittings which require only minimal filing to fit.

Wing Construction

The wing is a constant chord with ailerons and flaps secured to the preformed trailing spar. The ribs are all identical and are shipped preformed ready to pop rivet onto the spars.

The wing skins consist of a single sheet of aluminium which wraps from rear spar to rear spar. No rivets are used, the skin is epoxy bonded to the ribs.

The ailerons and flaps are shipped preformed and are mounted on the rear spar.

The wing tips are supplied ready moulded. John Monnett claims that a wing can be constructed in 20 hours. Weight of the complete wing is only 32 pounds.

Tailplane Construction

The tailplane is of butterfly design and is of similar easy construction as the wings using tubular spars, preformed ribs and moulded tips.

Fuselage Construction

The forward fuselage is a formed fibreglass moulding and it is not structural. The pod is shipped ready moulded and all that has to be done is to insert the welded steel structure into the canopy/windshield opening and bond it to the fibreglass pod.

The kit includes the steel tube material to make up the steel tube structure. However if you do not know how to weld, or would prefer not to have to trust your own welding, John Monnett is willing to ship the structure already welded. (Additional Dollar amount not stated.) Whether this will comply with the 51% requirement is up to the MoT and potential purchasers would be wise to check before ordering this option. The steel structure has built into it an overturn protection consist-

this is the mounting for the "plug-in" engine pod. The rear fuselage consists of an extruded aluminium tube which clamps into the steel tube cockpit structure with the special fittings supplied in the kit.

The cockpit is a side stick layout and will accommodate pilots from 5'-0" tall to 6'-2". The flap system is of reflex design. (Negative for cruise). All controls are push-rod operated, flaps connect automatically on assembly, ailerons are single pin connection.

The canopy/windshield is supplied pre-moulded and is available in either green or bronze tint only.

Engine Pod

The production self launching engine unit will be available shortly. The unit consists of a pylon mounted air cooled engine package. John Monnett is experimenting with two engines, both of which are at present being widely used by the hang gliding fraternity. The fuel tank is contained within the engine pod and it holds sufficient fuel for about 45 minutes use. The unit shown at Oshkosh was unfaired but tests are being carried out with various streamlined pods to arrive at the design with the least drag. The production unit will be supplied with a fixed pitch non-folding propeller but experiments are continuing in an effort to arrive at an economical drag-reducing combination.

The engine pod is mounted on a short pylon which slides into the overturn structure and secures with a single pin. The throttle, ignition control and starter cord are installed in the cockpit and run back to the pod mounting where they are interconnected with the controls in the pod. Time to mount and connect the engine unit is only a couple of minutes. The cost of the engine unit will be approximately US\$700. A rate of climb of 450 f.p.m. at full gross was quoted as the performance. Sailplane performance "engine off", was not available.

Availability of Kits

The first batch of 50 kits was almost completely sold out (48) before the opening of the Oshkosh show, the second batch of 50 kits was scheduled for the first week of October 1978.

The kit can truly be described as complete, it lacks only paint, filler, sandpaper, lead for ballast and instruments. A line of basic instruments may be made available if demand warrants but individual tastes vary and many companies are able to supply the builders' complete needs.

Monnett stated that the kit is designed for the first time builder and low time sailplane pilot. Completion of the kit is claimed to be possible within 300 hours.

Flight Demonstration

Only the prototype was at Oshkosh and, not unreasonably since it was being used in the development program for the engine, it was not available for flying. The prototype was demonstrated by John Monnett (using Air Sailing's towplane) and its performance appeared to be superior to a 1-26, although this is difficult to assess from the ground. Its approach was reminiscent of the 1-35 but its flying characteristics are designed

Performance

The performance claimed is an L/D of 28 : 1 at 60 mph and a min. sink of 2.8 f.p.s. at 55 mph. Stall is at 38 mph. These characteristics coupled with the ease of construction and assembly should ensure that we see more of this aircraft. The kit cost is US\$2,900.

Future Developments

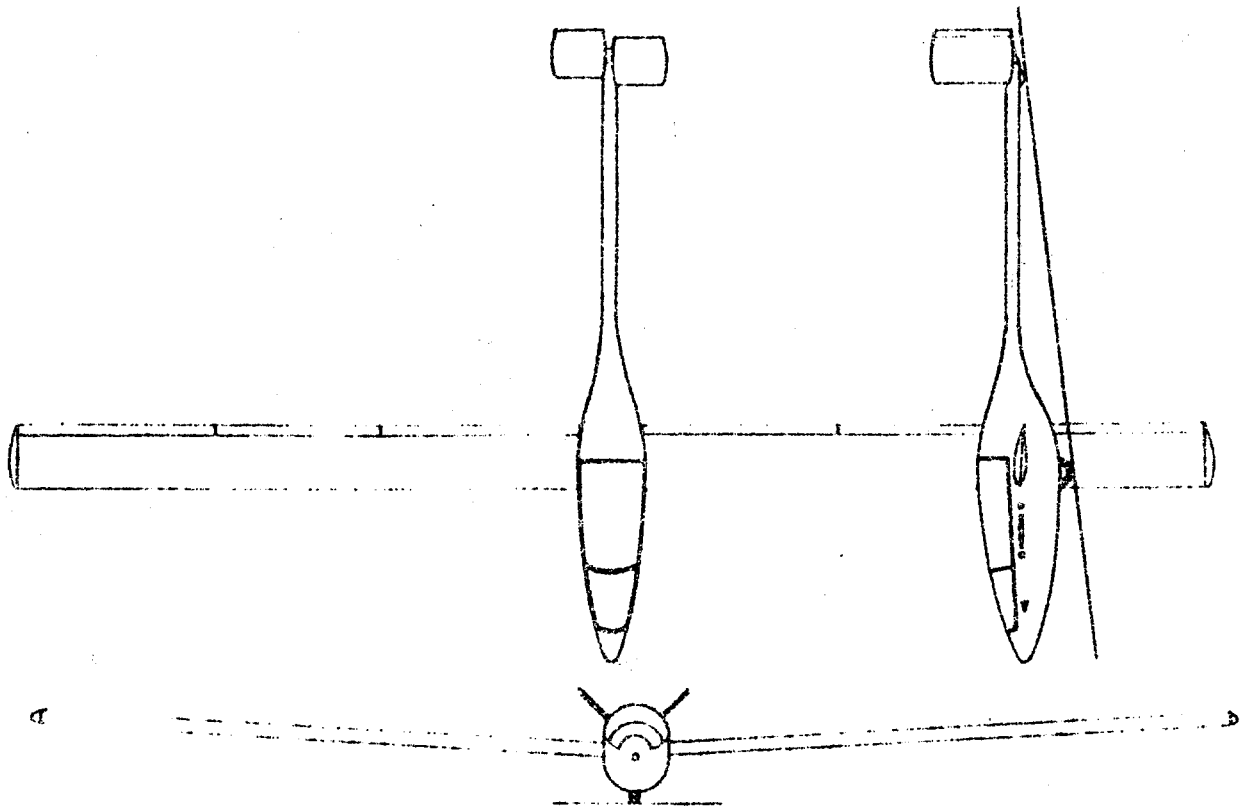
Several questions were asked at the Monerai Forum regarding future modifications: The wheel is fixed for simplicity, there are no plans to offer a retractable option. The wing construction is designed for flaps, a change to spoilers would complicate the structure tremendously. Most modern designs utilize flaps and there are no plans to redesign the wings to provide a spoiler option.

A question regarding a future two seat version did not receive an answer. I do not believe it was deliberately ignored, it was lost in the flurry of questions and comments. The question of a trailer design was raised, a drawing is available, there are no plans to produce a kit. It is ultrasimple and the base consists of two angle irons with a sheet of plywood bolted between. For simplicity the plywood is used in the full 4ft width. The trailer covering consists of Sears aluminium siding screwed to hoops bend from 10 ft lengths of aluminium conduit bolted to the angles on the base. The brackets used to secure the wings and fuselage in the trailer are also used in the rigging of the sailplane.

Many customers construct the trailer and drive to Elgin, Illinois, 40 miles west of Chicago, to pick up their kits.

SPECIFICATIONS AND PERFORMANCE

Length	19'7"
Height	35" / 32"
Area	78 sq.ft.
Span	36'
Chord	26"
Cockpit Height	27"
Cockpit Width	24"
Front Area	3.5 sq.ft.
Landing Gear	Single Wheel fixed
Aspect Ratio	16.6:1
Airfoil	FX61192 mod.
Empty Weight	220 lbs.
Gross Weight	450 lbs.
Wing Loading (gross weight)	5.76lb./sq.ft.
Structural Limits.	
(gross weight)	+ or -6
Stall Speed	38 mph.
Sink	2.8ft./min./55
L/D	28/1 at 60
Never Exceed Speed	120 mph.
Flap Operation Speed	90 mph.
Average Building Time	300 hrs.



MONERAJ

PARTY

- at the Sawyer's Place
- Saturday, 29th November
(This is the night after the highly acclaimed Film Evening.)

- Bring your own Grog
Girlfriends
Guys
Gutters

- Bocian in town so no flying!

Stick it in your diary right now.

ADELAIDE UNI. GLIDING CLUB
PRESENTS

WINE,
CHEESE

and

FILM NIGHT

FRIDAY 28th NOVEMBER **\$3**

UNION CINEMA, ADELAIDE UNI.

* TICKETS AVAILABLE 2553646

* VARIOUS GLIDING FILMS FOR ALL!
BRING YOUR FRIENDS

ADELAIDE UNIVERSITY GLIDING CLUB

MINUTES OF THE MEETING HELD IN THE JERRY PORTUS ROOM
ON 1ST DECEMBER, 1980

PRESENT: Guy Harley, Don Hein, Andrew Sawyer, Mark Forster, Dean Larwood, David Ellis, Graeme Newcombe, Graeme Parker, Redmond Quinn, Emilis Prelgauskas, Tom Nemeth, Tony Kiek.

The meeting commenced at 8.00 p.m.

1. Minutes of previous meeting were accepted.
2. Honorary membership for a month with a passenger flight was discontinued.
3. Correspondence
 - (a) Sports Council letter has been received dealing with 1981 budget. Don Hein will reply.
 - (b) A letter has been received regarding the 1981 Orientation Guide. To be dealt with by Mark Forster.
 - (c) A fee of \$45 has been imposed for our charter licence. Secretary is to write a letter of protest to the G.F.A.
 - (d) A letter was to hand from G.F.A. seeking club opinion whether G.F.A. should send a team to the World Championship at Paderborne in view of a South African team taking part. The vote was split evenly with a significant number abstaining. It was decided to return the letter without a club opinion.
4. Treasurers Report

The Treasurer reported that we were running to our budget for the remainder of 1980. The bank balance currently stands at \$1,238.
5. C.F.I. Report
 - (a) Bob Giles must arrive on field on time if he wishes to fly.
 - (b) Winch drivers must turn up when they are rostered.
 - (c) Rudder pedals on the Bocian must be tightened.
 - (d) The phone on the field must be hung up properly. Graeme Parker is to make up an emergency number placard.
 - (e) Cross country ratings of pilots is displayed on the notice board in the Jerry Portus room. If anybody felt it contained errors they should see Guy Harley or Tony Kiek.
 - (f) Use of CB radio. Tom Nemeth is to write operating instructions and place on base station box.
 - (g) No launching is to take place from the lay yard. The peg is to be dug out.
 - (h) Knapsack sprays. Both are to be made operational. The winch is to be fitted with a basket for the spray.
 - (i) No CB radio is to be used from a glider on launch other than in emergency.
 - (j) People on the ground are not to call a glider on launch other than through the winch driver.
 - (k) The launch must be organised before commencing. Communications must

6. Social Convenor's Report

- (a) The film night will take place on Friday 28.11.80.
- (b) The Club dinner will be at the Bistro on 20.10.80
- (c) Andrew Sawyer will organise tickets for the film night.
- (d) Dean Larwood will organise club awards at the Bistro Dinner.

7. Winch

Arms and drum are to be returned to the field by Mark Forster.

8. Bocian

- (a) Patch in the side of the cockpit is to be fixed before the C of A.
- (b) Seat Belts clips are to be rectified.
- (c) Wing tip is to be rectified.
- (d) Wheel brake is to be adjusted before going cross country.
- (e) Bocian Trailer is to be finished off before cross country.
- (f) To facilitate the above work the Bocian is to be flown to Gawler on the long weekend. The winch will tow the trailer down.

9. Arrow

A hole under the fuselage near the release is to be patched.

10. Ute

Exhaust is being fixed.

11. Falcon Wagon

The club has been donated an old falcon wagon with automatic transmission.

12. New Clubhouse

- (a) The rest of the materials at West Beach are still to be shifted.
- (b) The club has instructed Mellor, Gardner, Beamond and Page to apply for a licence.
- (c) The levelling of the site is still to be carried out.
- (d) Mark Forster is to get a price for plumbing materials.

13. Regatta

- (a) Mark Forster will act as winch driver both days.
- (b) Guy Harley is to obtain a VHF base radio.
- (c) Andrew Sawyer is organising the catering.

14. Orientation Week Activities

Mark Forster is to organise and prepare budget.

15. Meetings over exam/holiday period

Meetings will be held on 1st Wednesday in November and the first Wednesday in February. A social meeting will be held in December.

16. Guy Harley is still to write to all scholarship participants.

17. Mark Forster may arrange a leanto on the North side of the hangar.

THE TONY KIEK
WORD WARFARE EXTRAVAGANZA

FOREWORD

The following is from a motoring magazine but, put into our context, may have some relevance:
".....A system which bears no relation to reality never combines common sense with actual conditions and driving patterns. Any system which can set arbitrary, unbreakable rules for thousands of situations on the roads is not only wrong, but totally invalid."

-Motoring Into The 80's (P. 31)

1. Instructors are going to get tougher on people who do not attend when rostered or who repeatedly arrive late. We can only run a successful operation as a team effort with cooperation as the key; we can not afford to carry "gentlemen pilot" in AUGC and they will certainly be told this if they offend again.
2. There is a problem with the telephone in that the receiver is not always being replaced correctly in it's cradle. Make sure that if you use the 'phone, you check this before closing the booth.
3. Recently RAAF sent more low jets through our area, fortunatley we were not flyi. This highlights the club rule that before we operate midweek, we must call RAAF to inform them that we are there - they seem to forget us when it suits them. C is sending a letter of complaint to RAAF.
4. A number of members have made hazy comments about not being able to fulfil their roster commitments. You must organise your own replacements, and if this is no possible contact Tony immediately. Please give us some advanced warning.
5. Cross-country: Pilots who have not flown x-c within the last 12 months are not current x-c. This means they will have to at least do the outstanding check flight. Some others will also need to do a theory course. A list has been posted in the Sports Association with names in various categories. This list will be the basis for organising the courses and check flights. Make sure you are covered for the coming season, or you will miss out. Dates for the course and practicals will be announced very shortly. NB It is your responsibility to chase up either Guy or Tony - we will not be chasing you.
6. Action has been taken over the power line incident. A number of club rules are reinforced:-
 - (a) Launching from the hay-yard is banned. Only normal hook on pegs on the strips are to be used.
 - (b) Knapsack spurs are both to be checked at the start of the day. One is to be on the winch, one in the ute.
 - (c) CB radio is not to be used from a launching glider, unless in an emergency.
 - (d) CB radio messages to a launching glider may only be made from the winch necessary; certainly not from the base station. We have a set of standard launch signals (rolling and yawing) and these are the method to be used. Only in an emergency can we make an exception to this rule. A pilot has enough to do on launch without worrying about radio chatter, and if he is not correcting for drift enough, then he needs retraining. If conditions are so bad that he can't give glider signals, then you shouldn't be flying.
 - (e) Wingtip runners control the launch start once the pilot has given thumb. Make sure that all parties (pilot, winch and w.t.r.) agree on the signal method (lights, bat, wings, or CB). Confusion at this stage leads to

7. Tom has agreed to make a placard for the base CB radio, because it is obvious that a number of members have not read the instruction booklet kept in the base station. The placard will give simple steps to tune and operate the set. He will also be writing a newsletter article on this.
8. Graham Parker has agreed to make a placard for the 'phone booth giving the telephone numbers for emergencies:
- Snowtown Ambulance: 652200 (local call)
 Bute police : 262025 (")
 Bute fire : 262000 (")
9. Winch drivers are asked to keep to the edges of the runways when driving the truck, so that the grass is flattened and the strip margins become well marked. Keep the tyres out to 50m wide and do not drive over the tyres as they always move inward it seems. We are trying to organise mowing of the strips if possible.
10. Guy says that we are having pigeon problems again - this means placing planks in front of the hangar doors before going home.
11. General discipline: In order to avert any more incidents, operations are going to be tightened up. This relates to all aspects of activity - winch driving, launching flying standards, radio protocol, check flights, attendances, etc. etc. This is fair warning to all members that disciplinary action will be taken against offenders, particularly where offences jeopardise safety. Areas where many pilots need to improve are:
- Circuits too low - breaking off flight too late.
 Poor landings - not getting a nice 2 point landing with good flare out.
 Flying too low over boundary fence.
 Poor speed control in circuit.
 Inadequate pre-flight checks - CHAOTIC
 Poor communication with ground crew and winch runner
 Poor launch technique - drift problems, and poor signals from glider.
 Landing too close to other gliders or cars - keep at least 1 wingspan clear
12. A new batch of blue books and log books will be available next week on field.

Keep your wings level,

Tony.

THE FOLLOWING PAGES CONTAIN A SERIES OF TEST PAPERS GIVEN TO B.G.A. BRONZE "C" PILOTS (PRIOR TO SILVER "C"). I WOULD LIKE ALL SOLO PILOTS IN A.U.G.C. TO INCLUDE ALL INSTRUCTORS TO COMPLETE THE ANSWERS, AND THE TRAILERING INDEMNITY FORM, A RETURN TO ME VIA THE GLIDING MAILBOX IN THE SPORTS ASSOCIATION, OR IN PERSON. DO NOT HESITATE TO LOOK UP ANY REFERENCES YOU MAY NEED, OR ASK SOMEONE, BECAUSE THE WHOLE EXERCISE IS TO STIMULATE OR REFRESH YOUR GLIDING THEORY KNOWLEDGE TO THE STANDARD REQUIRED FOR SAFE CROSS-COUNTRY OPERATION. CAN YOU PLEASE HAVE ALL SHEETS BACK TO ME BY THE END OF NOVEMBER.

THANKS,

TONY FLEK

A. PRINCIPLES OF FLIGHT.

- I. A polar curve is a graph of:
 - a. Lift against weight.
 - b. Temperature against height.
 - c. Speed against sink.
 - d. Speed against rate of climb.
2. The angle of attack of an aerofoil is defined as:
 - a. The angle between the chord line of the wing and the horizon
 - b. The angle between the chord line of the wing and the fuselage
 - c. The angle between the chord line of the wing and the direction of the relative airflow.
 - d. The difference between the angle of incidence of the wing and the angle of incidence of the tailplane.
3. The main reason for having dihedral on the wing of a glider is to:
 - a. Make it difficult to spin.
 - b. Give it positive lateral stability.
 - c. Improve its spin recovery.
 - d. Lighten the load on the aileron controls.
4. What forces are acting on a glider flying straight at a constant speed in still air?
 - a. Lift and drag.
 - b. Lift, drag and centripetal force.
 - c. Lift, weight and induced drag.
 - d. Lift, drag and weight.
5. The lift developed by a wing depends on:
 - a. Speed, weight, air density and wing area.
 - b. Speed, angle of attack, wing area and air density.
 - c. Angle of attack, drag, air density and wing area.
 - d. Speed, drag and weight.
6. As speed is increased from the stalling speed in a glider:
 - a. Total drag reduces then increases.
 - b. Total drag increases.
 - c. Induced drag increases.
 - d. Profile drag reduces.
7. The glide angle of a glider depends on the:

- a. Weight, lift and drag.
 - b. Speed and drag.
 - c. Lift and drag.
 - d. Weight and drag.
8. While gliding in still air at 60 knots, you notice that the vario reads two knots down. What is the glide ratio being achieved.
- a. 1 in 10
 - b. 1 in 15
 - c. 1 in 20
 - d. 1 in 30
9. Why are the wings of the most high performance gliders tapered towards the tip?
- a. To minimise wing drop at the stall.
 - b. To minimise the induced drag.
 - c. To increase effectiveness of the ailerons at high speed.
 - d. To increase the lateral stability.
10. The reason most gliders are fitted with differential ailerons is to:
- a. Improve aileron control at high speeds.
 - b. Prevent tip stalling.
 - c. Counteract the effects of wash-out.
 - d. Reduce the effects of aileron drag.

TRY YOUR SKILL.

B. METEOROLOGY.

1. Orographic cloud is associated with:
 - a. Hills and mountains.
 - b. Marshes and swamps.
 - c. Thunderstorms.
 - d. Anticyclones.
2. The best area of wave lift with reference to a lenticular cloud
 - a. Under the centre of the cloud.
 - b. Approximately a quarter of the distance between the centre of the cloud and the one ahead.
 - c. Approximately half the distance between the centre of the cloud and the one ahead.
 - d. Under the trailing edge of the cloud.
3. The dry adiabatic lapse rate is:
 - a. 3°F per 1000 feet.
 - b. 1.5°C per 1000 feet.
 - c. 3°C per 1000 feet.
 - d. 5.4°F per 1000 feet.
4. The surface wind is $260^{\circ}/15$ knots. The wind at 4000 feet is most likely to be:
 - a. $240^{\circ}/30$ kts.
 - b. $260^{\circ}/15$ kts.
 - c. $260^{\circ}/30$ kts.
 - d. $280^{\circ}/30$ kts.
5. When you contact the Met. office before starting a days gliding you are told that an active cold front will be passing through your area during the morning. What significant conditions that affect gliding operations would you expect as the front passed through?
 - a. No significant change.
 - b. Wind backing and strengthening with strong gusts.
 - c. Wind veering and strengthening with strong gusts.
 - d. Wind direction remaining the same but strengthening with strong gusts.
6. Radiation fog is caused by:
 - a. Warm, moist air moving over colder ground or sea.
 - b. A light wind which mixes cold air from aloft with warm air from lower levels, thus cooling the mixture below the dew point.
 - c. Low stratus cloud.
 - d. Cooling of the earth at night, thus lowering the air temperature below dew point.
7. A lapse rate is:
 - a. The rate of change of temperature with height.
 - b. The geostrophic wind speed.
 - c. The rate of climb of an average glider in the average British thermal.
 - d. The rate at which water vapour condenses to form clouds.

8. During the day the following weather conditions are noted; early morning, high cirrus cloud which gradually thickens and cuts off the convection; lunch time, increasing medium cloud with light outbreaks of rain; afternoon, continuous light rain, low stratus. The most likely met. situation producing these symptoms is a:
- a. Cold front.
 - b. Warm front.
 - c. Anti-cyclone.
 - d. Cold occlusion.
9. On cross country flight, you notice that you have a strong cross wind from the left. On landing you would expect the altimeter to:
- a. Overread.
 - b. Underread.
 - c. Read correctly.
10. The effect of an inversion on thermal activity is to:
- a. Prevent them forming.
 - b. Prevent cloud forming at the top of thermals.
 - c. Encourage strong thermals provided that the air mass is conditionally unstable.
 - d. Limit their vertical development.

C. NAVIGATION, INSTRUMENTS AND GENERAL AIRMANSHP.

1. While preparing for a cross country flight, you find from the map that the track from base to the first turning point is 248. You notice from the map that the variation is 7°W. Assuming zero wind, the heading you would steer to make good this track is:
 - a. 241°M.
 - b. 248°M.
 - c. 255°M.
 - d. 260°M.
2. You decide that you want to head in a N.W. direction. The comp heading corresponding to N.W. assuming zero wind and deviation:
 - a. 225°.
 - b. 305°.
 - c. 315°.
 - d. 335°.
3. While flying in cloud, your ASI reading gradually falls zero and remains there. The most likely cause is:
 - a. An internal failure in the instrument.
 - b. The aircraft is fully stalled.
 - c. The static line or vent is blocked with water or ice.
 - d. The pivot head or line is blocked with water or ice.
4. A total energy variometer is:
 - a. The trade name of a particular type of variometer.
 - b. A normal variometer that is modified to indicate the verti speed of the air mass rather than that of the glider.
 - c. A variometer with a speed to fly scale around the peripher of the instrument.
 - d. A variometer which indicates the changes due to both heigh and speed of the glider.
5. While on cross country, well clear of controlled airspace, you become uncertain of your position. Which of the following shou be your most likely course of action:
 - a. Continue as planned, making no drastic course changes exce to keep in good soaring conditions until a definite pinpoi has been found and identified.
 - b. Land at once.
 - c. Circle in attempt to fix your position as soon as possible
 - d. Note a feature on the map and try to find it on the ground
6. The scale of the 1:500,000 aeronautical (ICAO) maps is approx:
 - a. 4 miles to the inch.
 - b. 6 miles to the inch.
 - c. 8 miles to the inch.
 - d. 10 miles to the inch.

7. Well established in the climb, you experience a launch failure. You immediate action should be:
 - a. Pull the release to drop the broken end of the cable.
 - b. Decide if it is possible to land straight ahead or complete a circuit.
 - c. Lower the nose to regain speed, then jettison the cable.
 - d. Start a turn preparatory to returning to the launch point.

8. During an aerotow, the tug pilot rocks the tug laterally. This means:
 - a. You must release the tow cable when it is safe to do so.
 - b. You must go into the low tow position.
 - c. Your airbrakes are out; close them immediately.
 - d. You must release the tow cable immediately.

9. A glider joining another in a thermal shall circle in:
 - a. Any direction provided that he is well above or below the other glider
 - b. Any direction provided that he is well above the other glider.
 - c. The same direction as the other glider.
 - d. Any direction he so desires.

10. During a solo flight you notice that the handling of the glider appears to be different to what you remember when you last flew it. After landing would you:
 - a. Do nothing.
 - b. Discuss it with the next pilot to fly the aircraft.
 - c. Discuss it with the duty instructor when convenient.
 - d. Discuss it with the duty instructor before the aircraft flies again.

D. AIR LAW.

1. You are flying a glider and note a light aircraft approach you head on. Unless some action is taken, a collision is imminent. You should:
 - a. Turn to the left.
 - b. Turn to the right.
 - c. Continue straight ahead secure in the knowledge that powered aircraft give way to gliders.
 - d. Dive below the powered aircraft.
2. Before landing at a strange airfield you see a white dumbbell in the signals square. This means:
 - a. You must land or take off on the paved area, but you taxi on the grass.
 - b. The C.F.I. is a weight lifter.
 - c. That variable directions may be used for landing and taking off.
 - d. That aircraft and gliders are confined to paved areas all time.
3. An accident which causes injury or substantial damage to glider must be reported to:
 - a. The police within 24 hours.
 - b. G.F.A. and D.o.T within 24 hours.
 - c. D.o.T and G.F.A. as soon as possible.
 - d. Need not be reported.
4. "Flight within a -----area is normally permitted outside the hours of activation of the area. However, in special circumstances, approval may be given for flight within such an area during its active hours".
What is the type of area described?
 - a. Prohibited.
 - b. Danger.
 - c. Control.
 - d. Restricted.
5. A series of red flashes given by Aldis lamp to an aircraft in the air mean:
 - a. Total prohibition of landing.
 - b. Do not land at this time; wait for permission.
 - c. You are in danger of causing a mid-air collision.
 - d. You are flying in prohibited area.
6. Uncontrolled civil airspace is available for use by gliders under what circumstances?
 - a. Never.
 - b. Without restriction, subject only to applicable Rules of the Air.
 - c. When permission has been granted by Regional Director D.o.T.
 - d. When airspace is released by F.S.U.

7. The keeping of a pilot's personal log book recording
(a) Name, address, and date of birth
(b) Past experience (c) Record of flights, and
(d) Authorisations, is:
a. Recommended
b. Mandatory under A.N.O's
c. Useful if moving from Club to Club.
d. A Club requirement.
8. Flight in VMC requires that a glider remain separated horizontally from cloud by:
a. 600 metres when 2000 feet AGL but less than 5000 ft. AMSL.
b. 2000 metres
c. 2 miles
d. 50 metres
9. You are flying a glider XC out of controlled airspace. You are tracking 045 degrees magnetic. At what altitude would you anticipate powered aircraft flying the same track might be flying below 10,000 feet?
a. Any altitude
b. 7500 and 9500 feet
c. 6000 feet
d. At any altitude below 5000 feet AMSL and at 7000 feet and 9000 feet.
10. You are planning a long cross country flight. Where would you find information on controlled airspace, prohibited areas etc.
a. On Visual Enroute Charts
b. From W.A.C. series maps.
c. By asking club instructors
d. In the Commonwealth Gazette, Dept. of Transport section.

ADLAIDE UNIVERSITY GLIDING CLUB INC.

RULES OF THE AIR TEST PAPER

Oral examination to be given to pilots as they reach solo standard.

1. What do the following abbreviations stand for:
LTC IFR GMT VMC SAR VFR DCA.
2. What is a Control Area.
3. What is a Control Zone.
4. Can you fly in or through a Danger Area.
5. Explain what QNH stands for.
6. Is flight permitted in a Restricted Area.
7. A sailplane is approaching from your right, who has right of way?
8. To what do sailplanes give way to.
9. If you are approaching another sailplane head on. What would you do?
10. If you are overtaking an aircraft on which side would you pass?
11. Who has right of way an aircraft on final approach or one about to take
12. Two sailplanes on approach, one higher than the other. Who has priority?
13. A sailplane is turning left at the top of a thermal another immediately below him is turning right which direction would you turn?
14. When is aerobatic flight permitted - min heights for G.F.A. and Club.
15. What is min. height at which a sailplane may circle?
16. Which side do you pass an aircraft when slope soaring?
17. When may a glider pilot operate from a Govt. or Licensed aerodrome?
18. What is necessary for a glider pilot to go cross country. Who must he notify and when must he obtain a clearance?
19. In the case of an accident involving major structural damage, what procedure is adopted?
20. How would you know if your aircraft is airworthy?



Adelaide University Gliding Club
% Sports Assoc. U of A.
North Ter. Adelaide SA. 5000

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NOTICE

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OFFICIAL CLUB POLICY ON TRAILERING, CREWING AND RETRIEVES 31.3.77

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1. OPERATIONS AWAY FROM HOME SITE must be approved by A.U.G.C. Committee including trailering to and fro.
2. CROSS COUNTRY FROM HOME SITE
 - (a) Pilot and crew chief to be appointed by duty instructor.
 - (b) Heaviest vehicle available to go on retrieves.
3. PILOT before setting out on cross-country must arrange crew (i.e. at least two others including crew chief).
4. CREW CHIEF
 - (a) Before pilot sets off, crew chief must get trailer coupled to vehicle, and D.I. rig.
 - (b) Before trailer leaves on retrieve, crew chief must notify Duty Pilot.
 - (c) Crew chief need not be the driver but is responsible for all aspects of the retrieve, and in particular to brief driver about trailer towing characteristics.
H.B. 30 m.p.h. on gravel roads, 50 m.p.h. on bitumen are the maximum permissible speeds under ideal conditions.
5. DRIVER IS REQUIRED TO PAY THE EXCESS ON INSURANCE PREMIUMS IN THE EVENT OF ANY DAMAGE TO GLIDER OR TRAILER IN TRANSIT.

NAME OF DRIVER:
SIGNATURE OF DRIVER: