



Discourse

from the end of the line

December 2011

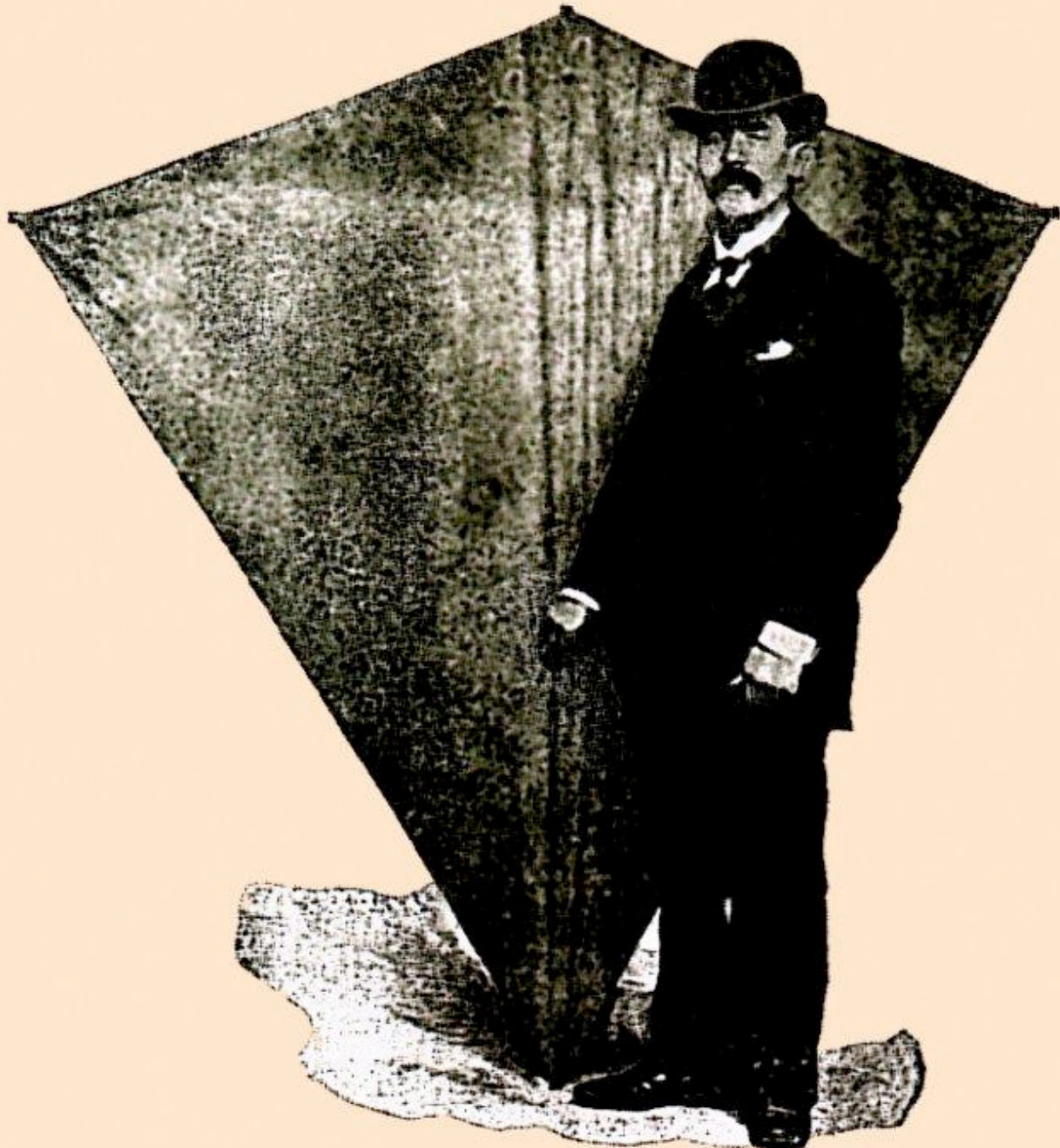


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ON THE COVER: William
Eddy and his kite.
See page 6 for news
about original Eddy kites
discovered on eBay.

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FROM THE EDITORS

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Discourse is published on the
Drachen Foundation website several
times a year and can be downloaded
free at www.drachen.org (under
"Browse" > "Articles").

This is an interesting issue of *Discourse* because most of the issue came to us from Australia and New Zealand. Two articles take us deep into the kite-buggy world and have something familiar in common: passion. Follow Charlie Watson as he spends two weeks with old friends – some people, some kites! – following his buggy passion. Then follow the Thuillier brothers as they go far-afield and buggy the Brazilian coast.

Passion drives the activities of Australian Bob Moore as he chronicles his adventures flying kites to very high altitudes in the Australian outback. Bob talks of successes and failures, breakthroughs and setbacks, during his high-flight efforts since 2003. He talks of the current technologies used to make the efforts possible as well as costs – in time and mental health – to pursue such a goal.

Finally, I talk of going to the mat and spending some serious money on two historical kite artifacts. Too valuable to the kite community to let escape, these two, original Eddy kites have now been documented and are presented to the kite community here for the first time.

Scott Skinner
Board President
Drachen Foundation

CORRESPONDENCE

[*Discourse*:] a magazine on notable kite stuff, the equivalent of *Rolling Stone* magazine but for kites.

CRAIG HANSEN
New Zealand

I'm very glad to hear that the article was well-received. Perhaps towards the end of next year I'll have more to tell! Hope so! Here in Bariloche, I'm pretty much the only steady regular passionate kite-flyer, but people do show interest, and the workshops are proving popular.

Our city is getting over the effects of the volcano Puyehue eruption (100km away) which covered the whole area with ashes. That disrupted life here quite drastically at the beginning, but now things are getting back to normal, fortunately. Kiting was out of the question for several months, but it's OK now, if the wind is not bringing the plume, which persists, and can be irritating for one's eyes... but we've already got used to it! (We use goggles and surgical masks on those days.)

DIANA ROSS
Argentina

I am grateful to you for publishing my article in *Discourse: from the end of the line*, September 2011. Pleasure is mine to contribute it. I am more than happy as it came out right on the happy occasion of Dasain Festival, which is a kite-flying season in Nepal. Thanks a million!

NIRMAN MAN TULADHAR
Nepal

So glad to see that The Department of Tethered Aviation was covered, I am also glad to see that we have a real kiting publication in the USA again!

TY BILLINGS
USA

Thoroughly enjoyed the last issue of *Discourse*. Fantastic job!

ALEX STUPARICH
Canada

It feels good to see my text in the latest *Discourse* (and to feel that my ideas found some echo).

DIETER DEHN
Germany

Although it is not necessary that you send a gift to me, since to be published [by] Drachen is an honor enough, it would be wonderful to receive it! I found the article organization and the picture distribution excellent. I also enjoyed the rest of the articles a lot.

MARIA ELENA GARCÍA AUTINO
Argentina

Wonderful story about KAP!

HANS SOYKA
Germany

It's Drachen that deserve the thanks and it's me that should be sending presents – you all do such a great job for kiteflying.

PETER LYNN
New Zealand

CONTRIBUTORS

BOB MOORE
Sydney, Australia

A professional in the public hospital system, Moore's hobby is high altitude kite flying and the quest for the world altitude record. Moore also loves motorbikes, chess, and debating. He is married with five children and three grandchildren.



Bob Moore

SCOTT SKINNER
Monument, Colorado

A former Air Force instructor pilot, Drachen's board president has flown and designed kites for three decades. Today, Skinner is known as a world class, visionary kite artist.



Jose Sainz

HARRY AND CHARLIE THUILLIER
Buckingham, England

Charlie has a degree from York University. Harry is marketing manager at Racelogic, a motorsports electronics company. Together, the brothers completed the longest kite buggy expedition ever attempted without vehicle support.



Charlie Thuillier

CHARLIE WATSON
Raglan, New Zealand

Born into a kiting family, Watson designs, builds and demonstrates single line kites and wind socks. A fighter kite, sport kite, and buggy enthusiast, he is co-founder and chief steward of the Western Circuit Kite Buggy Series NZ.



Ted Howard

WAITING ON HISTORY

Scott Skinner



Scott Skinner

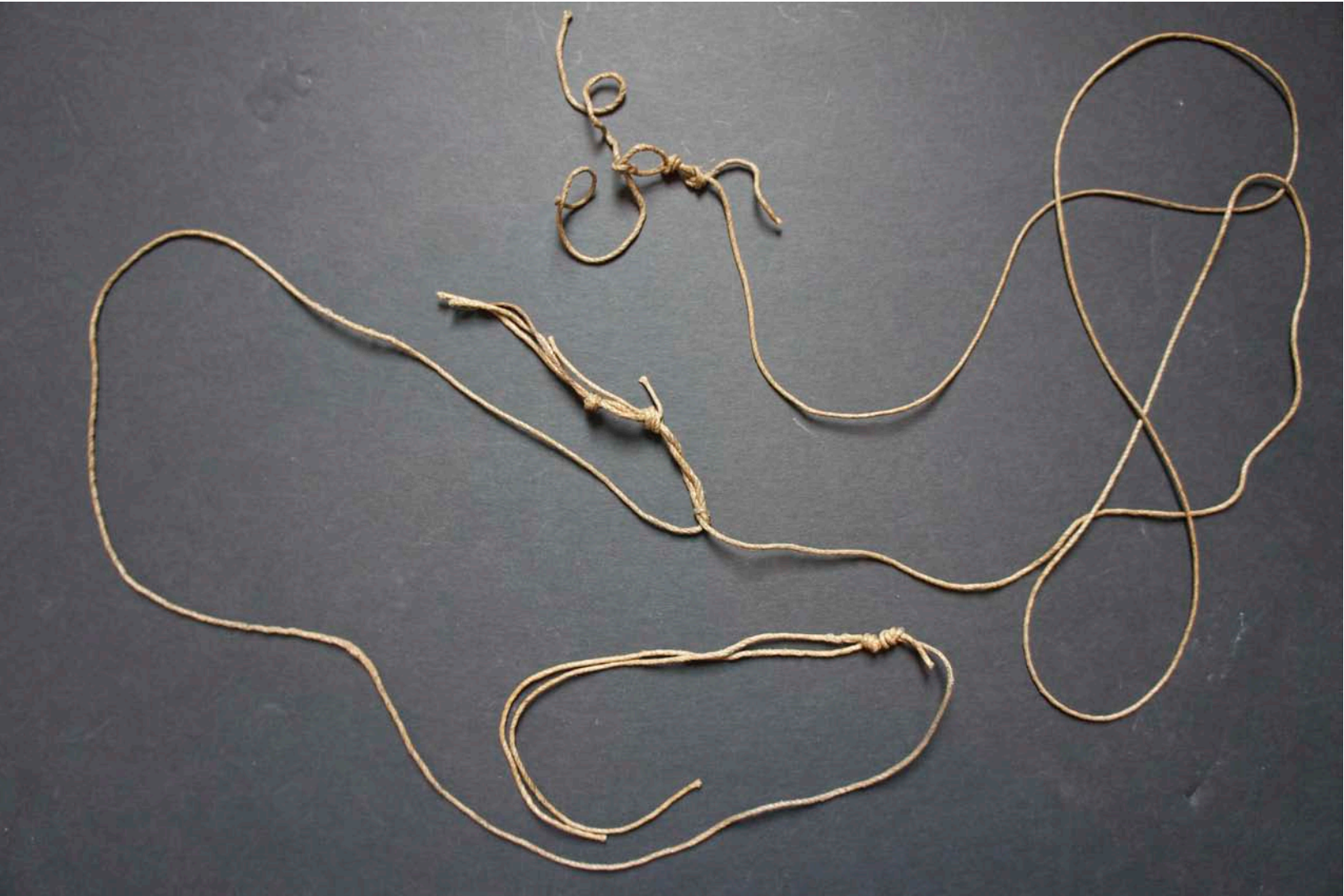
The Eddy kite label: "War Kite in Mid-Air, Flag Flying and Photography. The tailless kite."

I'm sitting in my office on the 1st of November, taking stock of the interesting events of the past month. It was the 3rd of October when Ali Fujino, administrator of the Drachen Foundation, forwarded an email she had received from Carsyn Gaines, a man asking about two items he was considering bringing to market via eBay. Carsyn had already done his homework and knew a little about what he had. He knew there was one of these in the Smithsonian; he knew the Drachen Foundation might shed light on the objects. He also was in touch with Bob White, a Canadian friend of the kite world who has focused on the historical aspects of kiting, to get an idea of what these objects might be worth.

Well, you might have guessed what Carsyn held: not just one, but two original Eddy kites. It was revealed he had purchased the kites for little from a posting on an area Craigslist. After asking (and hoping) that Carsyn not put both kites on eBay, he and his sister decided to put both kites up for online auction.

So now the wait began again. Both kites were listed on eBay in mid-October and were on for almost ten days before their auctions were final. Needless to say, the Eddys received a lot of attention from the American kite community. Ali, working on another project, happened to speak with museum curators who expressed interest but explained that an institution cannot put itself into an auction situation to acquire such items. The opening prices were steep, \$2500 and \$1500, limiting the number of kite people who could "afford" to be interested.

continued on page 12



Scott Skinner

A complete bridle from one of the two original Eddy kites, showing an untied end, the flying line connection, and a tied end.



Scott Skinner

Inside the hem of the box pleat on one of the two Eddy kites. Is this the original color?



Scott Skinner

One of the "box plaid," or box pleats,
clearly shown in the orange sail.



Scott Skinner

Corner detail on the white kite, showing ring and wire guys (won't lay flat).



Scott Skinner

Cross-spar detail and spine-with-eyelet.

For the entire history of the Drachen Foundation, the acquisition strategy has been to accept donations, buy kites when the prices are very reasonable or an item of importance is at risk, and finally, borrow kites for exhibition or display from me, the board president. The strategy has worked well, lowering the storage costs of maintaining the collection, knowing that I will continue to build my own personal collection to complement the Foundation's. So here was another situation where I felt strongly that acquiring the kites for my collection would allow them to be a digital asset for the Foundation's online archive, besides being offered to the world, and could be traveled by me or the Foundation for hands-on study. If both could be purchased, I would prevent the two being separated and/or lost. Having a large body of specimens to study is the chosen desire of researchers.

So here I am again in my office on November 1st. I bid and bought the kites, they were shipped last Friday, and I expect them at any minute.

Taking advantage of the wait, I looked online at the Eddy patent to re-familiarize myself with its details (see page 13). Here I found the Dieter Dehn article from a past issue of *Discourse* (<http://www.drachen.org/article/eddy-and-woglom-parakite-contribution-eddy-kite>), comparing Eddy and Woglom kites. I was about to put my hands on kite history!

The kites arrived via the US mail on the afternoon of the 1st, and I dutifully left them alone until this morning (the 2nd, during a blinding snowstorm) so I could photograph every moment of their reception.

I've unrolled the orange kite first, and several things jump out at me. First, it's in quite good condition, one small rip in the

sail and two more where the bridle was attached. Second, the edges are all intact with what looks to be original hardware at each corner (rather crudely shaped wire connections for the frame hardware). Finally, a surprise to me, the "guys" passing around the sail are wire, not hemp line. (In the patent, Eddy describes them this way: "guys passing therearound to form a symmetrical frame, a flexible covering secured by its edges to the end of said members and along said guys,...")

The last thing I immediately noticed were the two distinct "gathers" on each side of the sail to make the "box plaid" described in the Woglom patent. (I think we'd call this a "box pleat" today, but maybe this really is the sewing term still used.)

Then on to a quick examination of the white kite. Again, I'm impressed at the condition. Except for degradation at the bottom of the sail, it's in very good shape. I don't think this one could or should be stretched onto a frame, while the orange one probably could be. The bridle is still attached to the sail, at the intersection of the frame pieces and at the bottom of the vertical spar. Speaking of the spars, one of the frames is completely whole: a horizontal spar with brace, and vertical with both end-fittings (spine 72", cross-spar 72", eyelet still in place, for spine and cross-spar connection is 15.5" from top). The second has only half the spine and the complete horizontal with brace. In both frames, a wire bow line is still attached to one end of the cross spar. (I pulled the bow-wire taut, and the end of its ring is 1" from the end of the slightly bowed cross-spar.)

These kites look to be "production" models, probably to compete with the likes of the United States Conyne and Perkins kites of the early 20th century. They are made economically with thin metal fittings, everyday wire, and basic wooden spars.

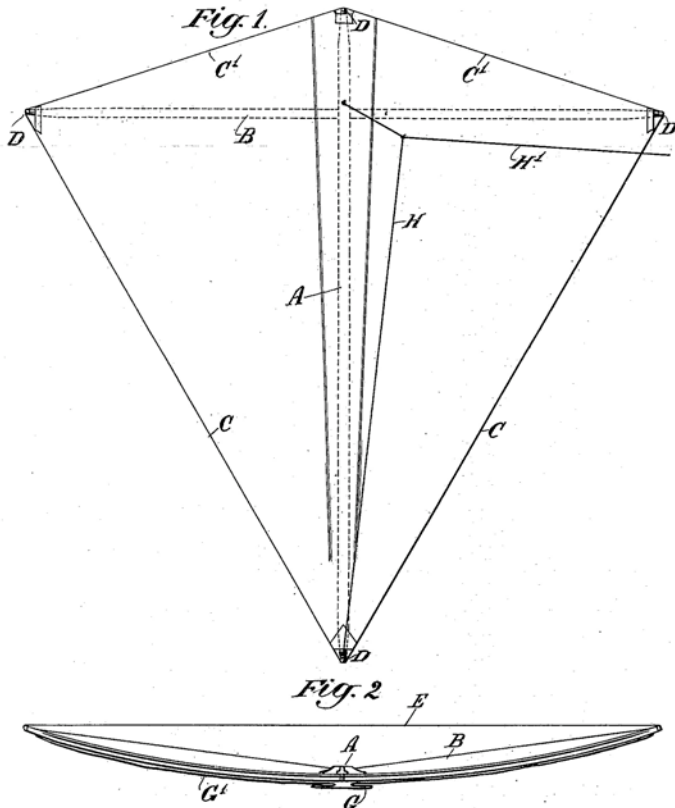
No. 648,544.

G. T. WOLOM.
KITE LIKE AEROPLANE.
(Application filed Nov. 20, 1895.)

Patented May 1, 1900.

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

R. S. Raymond
Thomas Littlejohn

Inventor:
Gilbert T. Woglom

By *Edwin H. Brown*
His Attorney

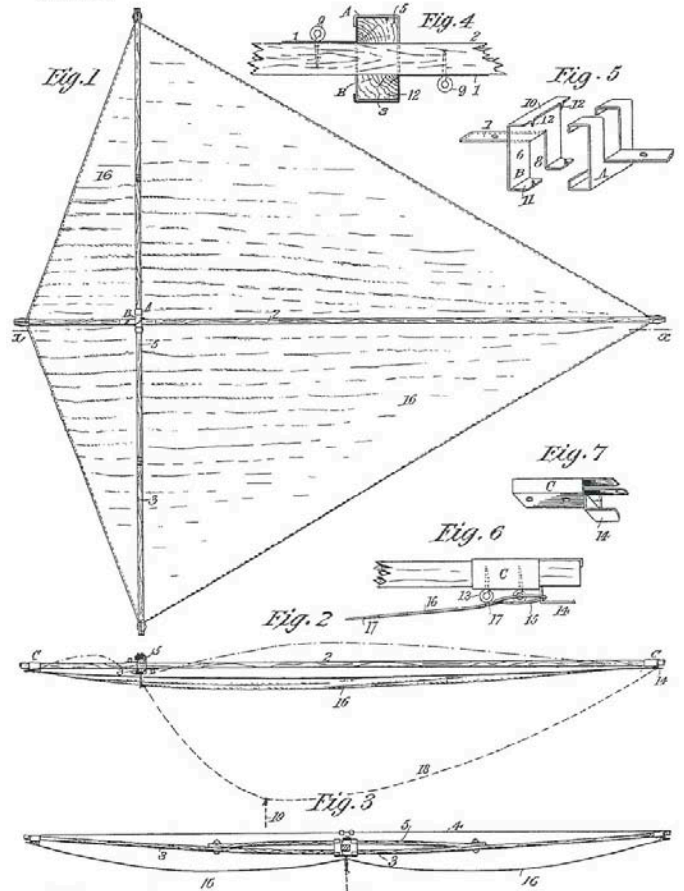
No. 646,375.

W. A. EDDY.
KITE.

Patented Mar. 27, 1900.

(No Model.)

(Application filed Aug. 1, 1898.)



Witnesses:
Raphael Ketter
John A. Hesse

William A. Eddy, Inventor
by *T. D. Merwin* Atty.

LEFT: Woglom kite patent. RIGHT: Eddy kite patent.



Scott Skinner

LEFT: The white kite sail unrolled, showing damage at the bottom. RIGHT: A carefully erected Eddy in its new home.

Comparing the finish and fittings of the fine German Eddy kite kits done by Holm Stuck (view on the Drachen Foundation website at <http://www.drachen.org/collections/eddy-kite-ft-worden-workshop-manual-holm-struck>) to these originals is like comparing a Mercedes to a Yugo. The metal fittings here are thin and flimsy, as if they were made from scrap tin and a good pair of tin-snips. The exception is the fine sail-cloth of polished cotton. It is of comparable quality to any I've seen in turn-of-the-century kites. It is, however, simply folded over the guy-wire and sewn in place without being hemmed.

Of course there is a frustrating aspect to this story. That is, the real history of the kites.

Carsyn, the eBay seller, was kind enough to share information with me after the sale, but it proved a dead end. The woman who sold the kites to Carsyn only knew that the kites had come from her husband's brother, who is now deceased. They were in southern Indiana, close to Louisville, Kentucky. The dreaded curse of research is always to know more.

As a postscript, I must add that I felt I had to at least try to fully assemble one of the kites. I chose to try the orange one and found that putting the cross spar in created no adverse affect on the sail. Then, in connecting the spine to the sail, I found that sufficient tension could not be put on the sail to fully erect the kite. With a rubber-band, I attached the top of the sail to the spine, allowing me to take a photograph of the assembled kite.

Both Eddys will be on view for study at the next Historical Kite Conference 2012 at Gut Ankelohe in Bad Bederkesa, Germany.

FOR MORE

See Bob White's citation on Eddy kites on the Drachen website:

<http://www.drachen.org/collections/eddy-kite-bob-white-information>

Historical Kite Conference Information:

<http://www.drachen.org/event/historical-kite-workshop-2012>

Historical Kite Conference Contact:

anmeldung@historical-kite-workshop.de

KITE ALTITUDE WORLD RECORD ATTEMPTS

Bob Moore

INTRODUCTION BY SCOTT SKINNER

Flying to very high altitudes may be the most visceral of emotions for the new kite flier. It's so easy to just continue to let out line until your kite is out of sight – only you know that the line you're holding is connected to a flying object far out of sight. After this first experience, most of us move on, saying, "Been there, done that," and really never test the upper limits of our personal flying spaces. But some continue to find ways to go higher and higher. Like all kite fliers, this group is limited by their environment – you just can't "casually" fly above 10,000 feet when you're surrounded by controlled airspace and the rules and regulations that come with it.

So the attempts to fly to very high altitudes are as much about finding an appropriate place to fly as they are about the logistics of flying line, reel, and kite. Finding a physical location that is appropriate for numerous high flight attempts, where you are away from controlled airspace, and where line breaks or kite crashes can be handled safely, is no easy task.

As an aside, I remember flying with Professor Ben Balseley on an Air Force gunnery range where we could legally fly to 18,000 feet within the area's boundary. Flying on Kevlar line, we had a line break (a splice came loose on our capstan) and were extremely concerned with catastrophic possibilities surrounding the trailing line: caught by a passing car or truck on the highway, caught in expensive farm equipment, or simply dragged across property, pulling up fences and plants.



Bob Moore

Australian Bob Moore in his early kiting days. Pictured here with his two boys, Andrew and James (hiding behind kite). Bob recently made a sixth series of attempts to beat the single kite altitude record of 14,509 feet above ground level.

Bob Moore's journey to set the world altitude record for kite flight is illustrative of a thoughtful and responsible approach. With years of experience, he has seen his share of mistakes and problems, but every year brings new technical skill, and he continues to challenge Canadian Richard Synergy's modern altitude kite record. "Don't try this at home," as they say on reality TV, but enjoy reading Bob's narrative.

A CAMPAIGN TO BREAK THE SINGLE KITE ALTITUDE RECORD

The single kite altitude record was claimed in the year 2000 by Canadian Richard Synergy at 14,509 feet above ground level.

Bob Moore, a 58-year-old health professional from Sydney, Australia, recently made a sixth series of attempts to reset the record. Along with three fellow Australian Kite Society members, Bob has managed over 25 high altitude flights from a disused airstrip at Cable Downs, a 50,000 acre sheep station near Cobar in western New South Wales, Australia. The most recent series of flights in September 2011 saw a big Dunton-Taylor delta soar to 14,121 feet above ground level, just 388 feet from the claimed Synergy record.

A CHILDHOOD DREAM BY BOB MOORE

As a 9-year-old child in the western suburbs of Sydney, Australia, I wanted to be a meteorologist. I never did fulfill that ambition, but I did have a sense of connection to the wind and sky through kite lines. My kites became increasingly bigger and my lines longer. Although my kites would have reached just a little over 500 feet above ground level, that seemed halfway to the moon to an 11-year-old boy. Lawrence Hargrave was my hero.

At that time I lived in a neighborhood with a particularly obnoxious older boy who took great delight in teasing younger children. One day he took to shooting at my kite with an air rifle and bragging that he was going to shoot it out of the sky. I just flew my kite higher and higher until it was nearly out of sight. I read the *Guinness Book of Records*. An entry described the Blue Hill box kite reaching 12,471 feet in 1896. It seemed very high, but I thought if they could do it, then I could go even higher.

TURNING THE DREAM INTO REALITY

The year 2003 was a pivotal year. I had already been dabbling with kites in a local park for two years, since my two young boys were able to run about.

Receiving Maxwell Eden's *The Magnificent Book of Kites* from my sister for my 50th birthday added the final ingredient to the high altitude cake. In it were designs for lots of kites, but one stood out: the Dunton Taylor (DT) delta or "fast climber." This proved important in my quest for a suitable high altitude kite. It was the year I decided to break the world altitude record.

I flew kites to higher and higher altitudes. I flew a six foot delta through clouds to 2,300 feet, and little did I know I was breaking the law, although I found it exciting. I read of Richard Synergy's year 2000 record claim on the internet. I built bigger and bigger versions of the DT delta that flew to even greater altitudes, but I quickly found that my line was a limiting factor and that with long line lengths, a powered winch and reel system was needed. I spent hundreds of hours researching all aspects of kite design, construction, line properties, drag, lift, atmosphere, wind, winches, and GPS (global positioning system). The years from 2003 to 2005 were trial and error, but I am a fast learner.

In early 2004, I met Michael Richards, proprietor of Kite Magic. I was looking for kite building materials. I mentioned my plan to break the altitude record and his eyes lit up. He said he would like to be part of the attempt. I thought, "Great, expert help." He built the first big DT delta from ripstop nylon and fiberglass tube. We tested it locally and it flew extremely well without any changes to bridle settings. It is a powerful and very strong kite design with outstanding flight characteristics, developed from hundreds of hours of testing small kites in local parks. It has remained the only kite design we have used in over six years of record attempts. We currently have four of these kites and a fifth lightweight version with a carbon fiber frame.

If my calculations were correct, I needed very strong, very thin line and a winch that was not only robust enough to cope with high line tension but could operate continuously for up to 12 hours each day. I also needed somewhere to fly with safety and so discovered I required permission from the Civil Aviation Safety Authority. Getting this permission and finding somewhere to fly is a story in itself.

In 2004, I built a prototype winch and purchased a box trailer. The winch would evolve through three major versions and several important modifications. I ordered 10,000 meters [about 6 miles] of 200 pound Spectra line through Michael Richards and Innotex in the USA. There were many other kite designs considered, but only five types were constructed and trialed, including delta, DT delta, Hargrave box, delta box, and winged box. I learned how to sew, and although my kites aren't up to competition standard, they are strong and fly exceptionally well.

In June 2004, the authorization was finalized with the Civil Aviation Safety

Authority (CASA). High altitude kite flying was new to me as well as CASA. The town of Cobar was chosen because it is free of air traffic. Cobar weather station would provide wind data from routine balloon flights each morning. The first visit to Cable Downs, a sheep station near Cobar, was a trial to 10,000 feet. I was excited and a bit nervous about what may happen.



Cable Downs is 750 kilometers, a 9 hour drive, from Sydney. Adapted from Google maps.

I went alone, as the team was not established yet. It was extremely taxing both physically and mentally, and conditions were hot, dry, and dusty. The long days were very draining, with flies, dust, and heat taking its toll on my energy and patience. Despite that, I managed to fly my big, black DT delta to over 4,200 feet above ground level on the first flight. The second flight on the same day was even higher at 6,500 feet, but the kite was lost when a splice on the 10,000 meter Spectra line separated at the 3,000 meter point. Another valuable lesson learned, but indirectly costing me over \$6,000. I then resolved that I would not fly high altitude kites alone at Cable Downs or anywhere ever again.



Bob Moore

Equipment used for kite altitude record attempts. LEFT: The original 120 square foot DT delta, which now rests somewhere in the wilderness. Pictured here in a western Sydney field in 2004 with the author's two boys, Andrew and James. RIGHT: A powered winch and reel system.

Every cloud has a silver lining (I hope), and the kite loss and subsequent search enabled me to meet local people who assisted me to recover line and the kite. I guess without these hardships, the altitude record would have less meaning. Sometimes I think this is a rationalization that allows me to continue with this quest. If it were easy, then I guess a lot more enthusiasts would be doing it. It certainly isn't easy. I've read of and spoken to people who say they are going to try to break the altitude record, but I never hear of them again. I guess when they try to go beyond a few thousand feet, they soon realize there is more to this than meets the eye. It requires a lot more than a big spool of fishing line, a medium delta, a protractor, and a catenary equation [an equation used to solve for the height at which a kite is flying above ground].

Following the kite breakaway in October 2004, the testing was over, although I did try some smaller deltas and achieved 3,500 feet in light conditions. The rest of the time was spent carrying out a two day ground search for the big, black kite. I walked 60 kilometers [about 37 miles] but never found it. I saw emus in the wild, a first for me.

After I returned to Sydney, a farmer found the kite. I had been searching 12 degrees too far east due to a mix up between magnetic and grid north on GPS units. We live and learn, and I came back to Sydney fitter, slimmer, and wiser!

APRIL 2005

A lot of valuable lessons were learned in the October 2004 testing. It was a shakedown session and certainly a lot of issues were shaken out, up, and down.

The most important lesson was not to trust factory line splices. So the first task was to inspect all of the 10,000 meters of Spectra

line, replacing all the splices with more generous overlaps. The Innotex factory technician maintained that 25mm overlap was sufficient, but I argued that when line is under compression, splices are unlocked. I allow a minimum of 100mm overlap, but now my lines are continuous lengths of 6,000 meters, splice free.

The second lesson was line cannot be compressed under full tension on the storage reel. A capstan and low compression storage system is required. In the six months between testing and the April 2005 series, I rebuilt the winch and obtained new 300 pound UHMWPE line (similar to Dyneema or Spectra).

I also knew that attempting the record solo was out of the question. Fortunately, I gathered together a crew including kite experts Michael Richards and Roger Martin, and Greg Moore, Hugh Moore, and David Moore. Hugh is a former survey technician. Together with David, they surveyed and established the theodolite [a precision instrument for measuring] reference points. Greg is a maintenance mechanic and looked after the winch.

A very accurate survey of theodolite reference points was carried out by a mining surveyor. These points were established to enable kite position and altitude to be determined via triangulation, but this method is only valid with clear skies. In later attempts, we have not used this technique due to lack of time and expertise needed to use the theodolites. In any case, the GPS units and the telemetry have proved more than enough for very accurate altitude verification. Theodolites are still used as a visual method of tracking kite movements.

Again, the months before the April 2005 attempts were filled with preparations,

including a NOTAM (“Notice to Airmen”) zone approval to protect against aircraft incursions. There were numerous additions to the conditions for flying big kites to high altitude, but fortunately most of these conditions decreased risk of line breakage and kite loss.

The week we were at Cable Downs was characterized by hot, dry conditions with light and variable winds. Several days were spent on the disused air strip, launching and relaunching the kite in a futile attempt to force the kite above 6,500 feet. We reached that altitude on thermals with a larger 165 square meter DT delta. After four days, Michael, Roger, Hugh, and David returned to Sydney. Greg and I were left to carry on for a few more days.

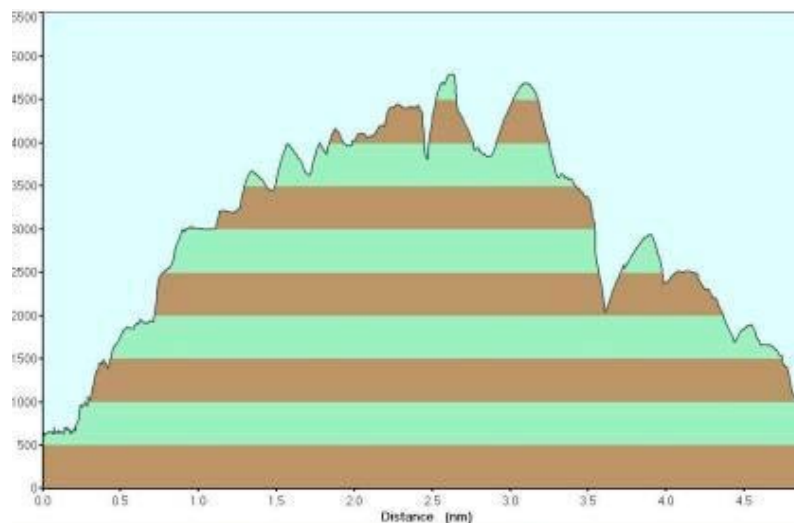
On our first day, we were frustrated by wind that dropped at 4,000 feet, and we spent many hours releasing line and then counter winching, attempting to force the 120 square meter black kite through the soft patch to better winds higher up. The conditions were hot and it was easy to lose concentration, which is what contributed to a broken line. On this series of attempts, I attached a 162 MHz tracking transmitter and used a Yagi directional aerial to receive the signal. This provided some means, hopefully, to track the kite if it went down. I left the winch unattended briefly and the line caught around the winch frame, cutting the line. The kite drifted off with the tracking transmitter beeping, but the kite went down in rough country almost 25 kilometers [about 15 miles] away. About \$1,300 worth of kite, line, and instruments are still out there in the bush. Despite several searches with tracking equipment, we were unable to locate the lost kite. We packed up and headed home.

I learned several more lessons, one of which was that no matter how good the kite, line,

and winch, you can’t fly high without wind. The winch must be improved and the line must be treated with the utmost respect. I planned another series of attempts in October 2005, only six months after this series.

OCTOBER 2005

Our attempts six months earlier were hampered by hot, dusty conditions and lack of wind. For these attempts, Michael Richards, Hugh Moore, and Greg Moore were with me again. Our efforts were hampered by light and variable winds and a low level jet stream. The first few days were characterized by reasonable ground winds, but a persistent soft layer between 3,000 and 5,000 feet prevented any appreciable altitudes being attained. The best was 4,000 feet on day three.



GPS altitude profile using Garmin Mapsource program. On this day, the kite reached about 4,200 feet.

On day four, we encountered a low level jet stream at 5,000 feet which took the kite suddenly to 7,000 feet. The winch motor struggled to control the line and burned out. We lost the kite into a neighboring property but recovered it the next morning. Much time was wasted retrieving the kite and line.

We had to abandon any further attempts.

We used telemetry for the first time at Cable Downs, which I had been testing on local fields for several months. It proved to be a very useful tool to have live data on a computer screen. It was a disappointing end to the week, but I took away more valuable lessons about the winch design and flying techniques. It became clear at that stage the limiting factor would not be equipment, as we were progressively ironing the bugs out, but the ultimate limitation would be wind or lack thereof. The late winter and early spring winds seem to offer better potential, and as a bonus, the temperature is much more pleasant for us kite fliers. However, we persisted with April for the next few series of attempts, as that was the most convenient in respect to business and work commitments.

APRIL 2007

We skipped 2006 attempts, as I had work and family to focus on. The break gave me a chance to build a new winch and refine the on-field methods we used. I purchased a new telemetry system from the USA and spent some time learning how to use the software, practicing on smaller kites in our local fields. I was now very aware of my responsibility to stay under 400 feet above the ground in Sydney's busy airspace. The period from October 2005 to April 2007 saw a big leap forward in our equipment and knowledge.

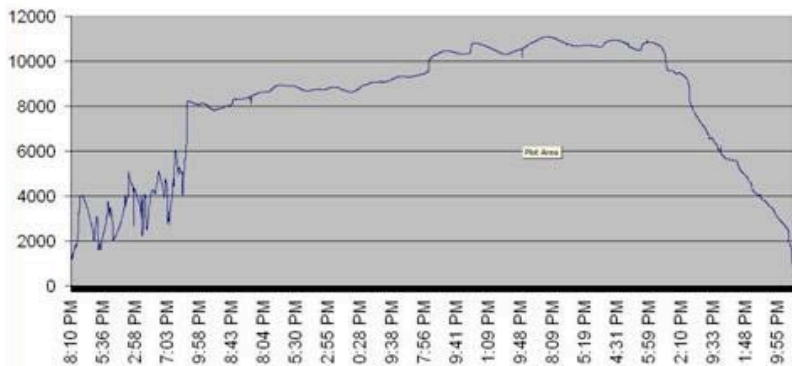
For the April 2007 series, I had a new team member, Barry Coppenhall, a kite enthusiast from England. He specializes in Indian fighter kites. Also returning were Michael Richards and Hugh Moore.

Day One

I arrived at Cable Downs early. Barry and

Michael arrived later that morning. We launched the kite around 11am, and this would prove to be a big factor in not getting near the record that day.

There was a steady breeze from the southeast. We gained altitude gradually, and by 3pm the kite had reached 10,000 feet with a few "soft spots" prolonging the ascent. However, the wind dropped from 18 to 12 knots, and we struggled for an hour just to stay at 10,400 feet.



2007: 10,466 feet above ground. Image using GPSflight telemetry data and a Microsoft Excel graph.

I made the decision to start bringing the kite back, as we had to land the kite before last light, which was in three hours. In hindsight, our late start cost us the chance to work the kite higher. At 3,000 feet, the kite line broke and, although we tracked the kite with GPS telemetry, it cost us two hours retrieving the kite and line the following morning. This again robbed us of flying time on day two.

Day Two

Back on the field, we spliced the recovered line onto the reel and launched kite two, a white and black DT delta, as kite one had minor damage from falling into a tree. Since the day before, the breeze had swung toward the east at 105 degrees, and several soft spots had developed from 4,000 to



Michael Richards



Bob Moore

Then and now. LEFT: Kites at Cable Downs airstrip in 2005.
RIGHT: The record kite, which flew to 14,121 feet in 2011.
Pictured are (left to right) Bob Moore, Michael Jenkins,
Michael Richards, and Roger Martin.

9,000 feet. We eventually achieved a little over 8,300 feet, but again I think we could have added at least 3,000 feet to that given an earlier launch.

Day Three

Day three was better, and we flew to over 9,100 feet, but I got the feeling the wind had passed its best at the end of day one. Three consecutive days over 8,000 feet was still pretty good.

Day Four

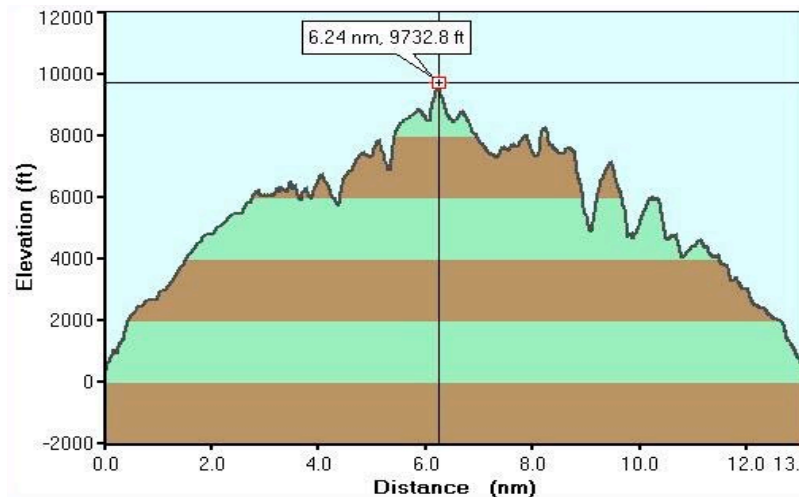
Disappointment was the feeling for the day, with early promise turning to frustration as the wind died suddenly at 12pm and the kite was stranded three kilometers [about two miles] away. After a long walk, we eventually got the kite out of a tree. The nine hour journey back to Sydney was done in good spirits, as we had just set a new Australian record and perhaps the second highest in the world.

We had a break for two years, and in that period, I incorporated small improvements to the winch. The most significant was the addition of a line payout meter which is based on a land distance wheel. In real time we know how high the kite is, where the kite is, how much line is out to within a few meters, and line angle at the winch. The data we still needed was line tension, and the piece of equipment that measures line tension was on the way courtesy of Doug La Rock at Kite Builders Forum.

2009

After a two year break, Michael Richards, Mike Jenkins, and Roger Martin joined me for four days of rain, storms, thunderbolts, and lightning – and 9,119 feet above ground level. We camped for the first time on the edge of the airstrip. It must have

signaled the rain gods to work their magic, as it absolutely bucketed down. However, despite the very small window of opportunity, we flew one of our big DT deltas to 9,119 feet above ground level. I also took some KAP at 2,200 feet. The equipment worked well, and there were just some minor modifications and repairs to do.



The GPS measures from sea level, so ground level must be subtracted. Cable Downs airstrip is 630 feet above sea level. The GPS here recorded 9,732.8 feet above sea level, so it is 9,102.8 feet above ground level.

We already were planning our next series in late March or early April 2010 when I proposed an extended period at Cable Downs. Unfortunately, none of my team mates could afford to be away for two weeks.

The big change this year was that the flying field was now extended from a narrow 1.2 kilometer strip to a 1.2 x 1.5 kilometer field with scattered trees. This is a big bonus, allowing much lower line angles and more flexibility to play line in and out without fear of snagging trees.

APRIL 2010

The preparations for 2010 were bolstered by sponsorship from DSM Dyneema in

Holland with supply of Dyneema fiber to Cousin-Trestec in France for braiding. While we don't have financial sponsorship, we do have lines provided. Some parts for our winch are from Lewis Pulleys, and Universal Instruments loans us the theodolites. The lines may last one series or many series, but eventually they need replacement.

I arrived five days earlier than my team mates, but there was little wind, apart from one day when I flew our big, white and black DT Delta to 5,000 feet in warm and variable winds that ultimately died and stranded my kite two kilometers [about one mile] to the north. A long walk in hot conditions and then winching in of line through the scrub left me exhausted. I needed a beer, but I can't have one because I'm diabetic!

When a kite goes down in this country, it always involves a winching of line through scrub and trees. While the line is very strong and slippery, it does get some wear and tear in the process. I have to visually inspect line for significant damage as it's wound in through the trees and bushes.

I do strength testing of entire line sets from time to time. The last one was done in 2006 on a dry lake bed. It was an epic event in itself and involved stretching three kilometer [about two mile] sections of line around a fixed pulley then back to the trailer to measure tension with a strain gauge.

After I sat out the calm conditions for a few days, I was ready to break the record. But was the wind ready to cooperate?

The other guys finally arrived from Sydney. The team was the same as 2009 with me, Michael Richards, Roger Martin, and Mike Jenkins. We camped on the flying field for the second year in a row, hoping we did not

get the rain we experienced last year. We didn't get much wind but managed our best yet altitude of 10,681 feet above the ground.

It's difficult, if not impossible, to predict the wind with much accuracy beyond a few days in advance. We choose the dates for the record attempts months in advance, so mostly it's a matter of selecting a period of the year when the mathematical chances of suitable winds occurring are at their highest. That period now seems to be late winter/early spring, but there are no guarantees.

2011

Day One

Our 2011 series started with a bang, as the winds were strong from the north at ground level and good to high altitude. But there were a couple of soft layers that needed several hours of counter winching to force the kite through. A team member stares intently at the computer screen calling out the kite altitude.

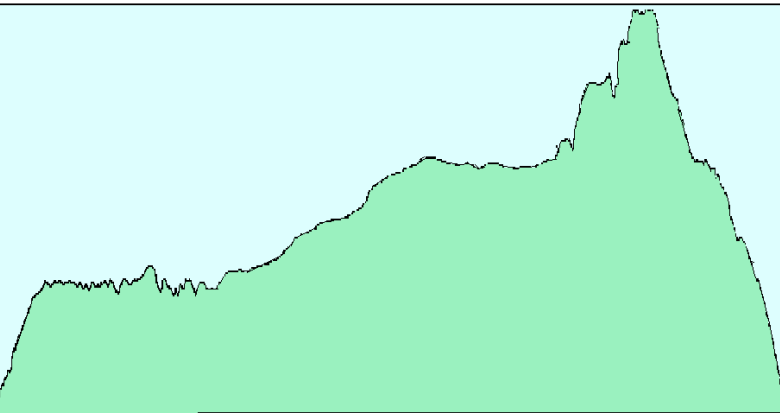
The kite rose quickly to 4,000 feet, then we struggled for three hours, the line threatening to sag into distant tree tops. Finally we got beyond 5,000 feet in the early afternoon. It was a smooth climb to 9,000 feet, then another soft layer needed over two hours to work the kite higher.

By 4pm, the kite had reached 12,000 feet, and we all cheered as each altitude milestone was passed. It looked like we may have the record, but time was running out. The kite then rose steadily to 14,000 feet, and we had the record of 14,509 feet in sight.

The kite stalled at around 14,100 feet. We worked the winch, hoping to coax the kite to 15,000 feet, but we spent 40 minutes in

vain. I made the decision to bring the kite down, as the CASA conditions allow flying in daylight hours only.

We reached 14,121 feet, 388 feet short of the claimed record: frustrated but very pleased at the same time.



Composite graph of Garmin GPS altitude data from September 27, 2011. The kite achieved 14,121 feet above ground level, just 388 feet short of the claimed record. The flight took over 10 hours.

Days Two and Three

Severe weather prevailed for two days with either thunderbolts and lightning, downpours, or kite shredding winds. We sat in the wool shed or headed off into Cobar for coffee and croissants.

Day Four

We launched at 9:30am with the line shrieking and wailing in a 15-25 knot westerly. The kite rose rapidly to 4,000 feet, then the telemetry transmission stopped. We brought the kite back down to discover the radio aerial had fallen off. We replaced the aerial and relaunched, but this mishap cost us two hours.

The kite went back up to 4,000 feet within a half hour, then climbed steadily to 10,000 feet, struggling in the 40 knot wind. The

wind would rise even higher. Even accounting for a 38% reduction in air density, no kite is designed to fly in the ground equivalent of a 45 knot wind. The kite was viewed through the theodolite and it was taking a hammering.

At 12,700 feet, the line broke. I later examined telemetry data at the time of line break, and the kite accelerated instantly to 59 knots. I am not sure why the line broke, but the tension simply may have exceeded line strength (192 pounds). We reeled in over six kilometers [about four miles] of line within 40 minutes. About 2,288 meters of line remained attached to the kite. We tracked the kite down to 550 feet and 19.2 kilometers away.

We went back to Sydney the following morning, exhausted but happy with our altitude. I never imagined kite flying could be such hard work.

We came so close and we are confident of going well beyond 15,000 feet given the right conditions. Next year we will have new lines from DSM Dyneema and a few gadgets to help us in our quest.

We will beat the record, providing the wind gods are smiling.

Watch videos of Bob's kite altitude world record attempts on YouTube:
<http://www.youtube.com/user/droceretik>

CHRISTMAS WITH PETER LYNN

Charlie Watson



The author in a custom stock buggy.

It's winter here [in New Zealand]. It's been fairly mild, so I can't really complain, but summer seems a long time ago. Last year I didn't spend so much time in the seat, so when my Christmas holiday approached, I decided that I was going to ride my buggy as much as I could and jam with my buddies. I finished work on Friday, Dec. 17, 2010. I would have 18 days off and I wanted 10 rides. Not an unreasonable target if the wind blows.

Saturday, Dec. 18: The wind was blowing and the tide was reasonable, but I just didn't get out on the beach. No reason. Then it rained and the wind dropped off, and that was that.

Sunday, Dec. 19: Things to do that don't involve the wind.

Monday, Dec. 20: I headed down to the park to do a light wind test on an old pink kite my brother bought online for \$40 bucks. He had no idea how to set it up, so he left it with me. It seemed like something was missing. It's only six square meters, but once I had it tuned up, it pulled like a truck. I should have taken my buggy. Three days down and still no time in the seat.

Tuesday, Dec. 21: Raglan. The beach is very odd. Lots of moguls and pools where there is usually flat sand. The only decent bit of riding is between the bank and a big pool along a narrow strip of flat that runs down to a small flat area, and some very wet moguls in front of where the kite surfers park up. The 6 is hauling and it is a great ride even if it is a bit challenging holding the line. After half an hour

of struggling along the corridor, I drop to a 4. Not quite as much power but much easier to thread through the moguls and set up for a quick run down the strip. Fantastic.

Wednesday, Dec. 22: Nothing.

Thursday, Dec. 23: Raglan. The big beach is back with a nice mogul field by the water. When it's nice and warm, I enjoy bouncing around in the rough dropping wheels in the water, even if I do cock it up sometimes and have to drive straight through some deep water. My Twister 2 is in the air.



The author's Twister 2 in Raglan, New Zealand.

This is one of my hand-me-downs. I have a bag full of kites from various Peter Lynn folk. The T2 came from Craig Hansen. He is a big lad, our Craig. He rides fast and jumps a big, heavy buggy with real style. One day he pushed it a bit hard and trashed some bridles on his 3. I got hold of it, repaired it, and I like it. Medium aspect and a bit dumpy, it pulls very nicely and it's always where it is supposed to be. Now it's not a race kite, but I was riding when Craig used it on an 88 kph (about 55 mph) run down

my beach, so it will go as fast as I want to go. Today the wind is blowing straight down the beach, so it's short runs on the flat with a whole bunch of zigging and zagging in the rough. Best ride in a long time.

Friday, Dec. 24: Strandon/Fitzroy, New Plymouth. We headed off down to Taranaki for a Christmas holiday with the aim of sharing Plummet's beaches and having a nostalgia trip. I have ridden in Taranaki many times, but 10 years slipped by since I last put my buggy on the Naki sand. Cudby lives there and Northern Al has connections with the district, so there was potential for some real fun. After a quick hello at my ma-in-law's house, I headed to the beach. As I pulled into the car park, Plummet appeared still wet from a session in the surf. While I was setting up and he was packing down, we met a local who has a buggy in his shed, but he'd had a bad moment while learning and never carried on. Plummet abandoned me for Christmas Eve with his family and I hit the beach with a nice big wind. The twister was my first choice, but it quickly scared the heebies out of me. It is a high lift kite and I am an old school stunt kite flier who tends to throw a kite high when I want it to stop grunting. That's not really how high lift kites work. I jumped in and headed off on a 1.5 kilometer down-winder to the boulder bank. All was good until I turned around and realized that the wind I was beating into was blowing slightly off shore and was lumpy. Some of the lumps were really big, so I constantly told myself not to throw it high. Back to Strandon and I found a great figure eight course using boulders as course markers – short bursts of acceleration followed by big slides. Got to be careful though. There were boulders at one end, fields of driftwood at the other, and I was flying a kite that scares me when the wind is up. After a while the wimp took over, and I dropped to my 1.6. This is a hand me down from Peter himself, one of

the many ex-demo kites that he had in a big pile in the corner. It may be small, but it is a C Quad and it works very well in a big wind. Smooth power, great positioning, upwind, downwind, up hill and down dale, it has it all. Even though it is just over half the size of the T2, it had sufficient grunt, and I spent the next hour feeling a lot more comfortable but a tad slower, never hitting a rock but not getting cocky about it. It's a great feeling walking off that beach up a ramp surrounded by driftwood and boulders and knowing that they may have come close, but there are no bruises.

Saturday, Dec. 25: Christmas Day, Strandon Beach, New Plymouth. Christmas goes well with lots of family and food and kids and all the good things that make it a good day. When the tide goes out, it is buggy time. I get the call – Al has been drinking and needs a ride. I find him in an extremely good mood and we head to the beach. We pull in and Cudby is waiting. Brett Cudby. The legend. The fast, tall one, race winner, 100kph club, trickster, jumper, and one of those guys who can hold a bigger kite than he really should be able to and still keep it all pointing forward. 10 years out of the seat and he is ready for a taste. I throw him my wee peel. This was Phil Mcconnachie's high wind racing kite: 2.5 square, Icarex and spectra. It's actually my wife Lorraine's kite and we got it at the big international fest in Napier in 1995. All these years later and it still flies fine. I tweaked the A and B lines a few years ago, and the tow points needed sorting, but apart from that it has given me 16 years of service. It was my number one high wind kite until I got the 1.6 in 2009. It's one of those kites that is a bit soft when it's locked in, but if it's worked, it can really pull. Power from speed is good power, and Cudby is throwing it around like he never stopped. He blasts a 50kph down-winder before handing it back. I get out the 1.6. Before long I am sliding around boulders,

dodging Al with an NGen who is skating in his absurdly wide buggy, spending very little time pointing forward. I hand the wee C Quad to Cudby and he is playing around the boulders like a man who never went away. I have been trying to have a Christmas Day buggy for years. When it finally happened, it was perfect.



Al Noblet in an NGen on Christmas Day in Strandon.

Sunday, Dec. 26: Boxing Day, Strandon, New Plymouth. After a day at Wanganui watching motorcycle street racing, I got to the beach a bit late. Plummet, Al, and Cudby were gazing at a windless beach with a look of despair, but I was quite pleased. The flag wasn't moving. Not that flags should be trusted, but airports have socks for a reason. I had wanted to see what my 8.5 C Quad could do in practically nothing. What it does is it flies. It popped up in the sky, and with a bit of teasing it stayed there. Al ran it in a circle, and when it came back to the direction where the wind should have been, it pulled quite hard. This particular kite sat in the corner at Ashburton for years. It has a split leading edge spar which I bound with cellotape and



On a perfect Christmas Day in 2010, the author buggies at Strandon Beach, New Plymouth in New Zealand.



Pic. R Reid

The author buggies in front of the "Bowl," a scoop in the hill that wind rushes up, creating a turbo zone. Good for a quick take off or a fast finish, also a great spot for tricks.



Buggier Brett Cudby, described as: "The legend. The fast, tall one, race winner, 100kph club, trickster, jumper, and one of those guys who can hold a bigger kite than he really should be able to and still keep it all pointing forward."

never quite got around to replacing. It still flies well. Cudby and Al bailed on us shortly before a steady three knots kicked in and I got in my buggy and started riding. If the wind is steady, kites really don't need that much to do what they do, and in the case of an 8.5...not much is three knots. Within a few minutes it's gusting to five and Plummet has his self built carbon land board out and is setting up some 15 meter sausage kite. I know those de-powers work, but they are big, fat, bulgy things that remind me of a pack of sausages. For the next two hours we rode the beach from end to end, dodging rocks and bathing in the glow of the New Plymouth city lights when the sun went down. Riding through the sunset with a buddy is about as good as it gets, even if it wasn't so speedy. I love riding at night. The reflection of the lights on the wet Taranaki sand was glorious and quite good for visibility with no head lamps. Plummet hit a rock, but I managed to avoid one in a very tricky emergency avoidance action. I did run over a stick, and my feet bounced off the pegs as I was heading towards something nasty. It is surprising how quick I can find the pegs when I am about to smash into a rock the size of a car. Off the beach at 10pm.

Monday A.M., Dec. 27: Ngamotu Beach, New Plymouth. Up at 6am, Plummet rolls along at 6:45, and by 7:30 we are playing tennis ball tag with Port Taranaki as a back drop on a lovely short beach with hard sand and a banking effect. After filming Plummet jumping over me and trying some stuff for the upcoming Naki Nut Buster, we start up some pursuit racing. Last time I raced. I came second in the loser's race at the 1996 national champs. I was never that fast, but no one is watching, so we set a course and have a few heats. The plan is to start one at each end and try to pass the other guy. I am out with my 4.2 C Quad. I got this kite in 1999 and have used it a lot over the years,

but I have to say that it's a bit of a prick of a kite. A lot of people never really got into C Quads. Some of them refused to adapt, and others never tried one set up with offset strops. There is the whole thing with the bag, and a lot of people took an instant dislike to them the first time one nosed over and fluttered to the ground. Personally, I like them. More wrist, less arm – how hard is that? That's all the trick is. I have a bunch of C Quads, and I hardly ever luff them. Except for my 4.2. I've had it 12 years, and I drop that thing on the ground every time I use it. It is scarred and bruised as a result.



The author's 4.2 C Quad kite.

When I got it, Jenny Cook told me: "It's Pete's personal surf kite. It's bridled forward a little, so pay attention to the brake lines." It's great on the straight, but it is so easy to lose it when turning. Its one saving grace is that it has amazing performance. It was my light wind kite for many years, and it is only a 4. I have ridden it all over the Mooseland dunes and jammed Raglan so many times that all its handling issues are completely forgiven. I still swear at it when it's falling from the sky, but I don't really want it

cursed to eternal damnation because there will be another day when it's the right kite for the moment. So we are racing. Plummet has a 10 pack of sausages, and it is even until he makes a wee error and I get the win. Amazing. Then another. Plummet upsizes. I should do the same, but I stick with the 4.2 and get well and truly savaged by the land boarder flying a 15 pack. So 3-2 to Plummet, but I won the tag so we leave the beach 3 all. Unfortunately, I joined the dreaded "beaten by that damned boarder" club. That club is quite big now.



Ngamotu Beach, Port Taranaki, New Zealand.

Monday P.M., Dec. 27: Oakura Beach, Taranaki. Al is sliding, Plummet is jumping, and my boy Matt has his sport kite screaming. Cudby turns up with his own buggy and is straight into trick mode, spinning and standing all over the beach. Amazing that he still has his form after so long away. I am riding around throwing tennis balls at people, with my 4 threatening to throw me on the ground. We stop for a beer and chips before going back for the money shot. I trade for my 4.2, and we all end up on a small section of beach,

giggling and yahooing, riding as hard as we can without taking each other out. It's been a while since I've been out twice in a day, and both rides are brilliant.

So far so good. Seven rides, five days in a row. I haven't done that for a long time. Cudby is keen to ride, and his bearings are spinning, so I leave him my 4 and my beloved 2.2. I will be back in a month to collect them at the Nut Buster. This is what you do for your buddies, but I can't help thinking that it's a bad idea.

Tuesday, Dec. 28: Raglan at dark. Time to head home. It's only a three hour drive, but by the time we pack up, do the farewells, gas up, buy the groceries, and stop at a friend's, it always takes most of the day. The plan is to get in an early morning session at Back Beach. That's a real wind-swept, rock-strewn hellhole. I've had some great rides there before, and I did all the other beaches, so I am keen. Wake up at 6am. Raining. Nope, that's not going to happen. We get in to Raglan, and I unload the car and head to the beach at dusk. The whole place is pink, quite beautiful really. Big SSW blowing, which is very rideable but always lumpy, so out with the Peel. Plenty of power and feeling quite safe. After a quick blat in front of the car park, I start the long slow tack south to the surf club 2.5km away. Riding through long shallow puddles, taking note of the exposed rocks, I get to the surf club and notice that it is not pink anymore, it is dark. So I am wet, all alone in a lumpy wind, 2.5 km from the car at night with no light, and I just can't stop smiling. My MP3 player is blasting the rock'n'roll, and I start the run back. The south-north run on Ngaranui is a beautiful thing. I have done it so many times over the years, and it never gets old. In the dark with stars above was awesome. I missed all the hazards and got a nice boost as I hit the Bowl. The Bowl is a scoop in the hill by the trig. The wind rushes

up it and creates a turbo zone. The paragliders use the Bowl to get lift. I was on the handles of a tandem glider once – a few eights off the Bowl and we were way up in the air. On the beach, it is good for a quick take off or a fast finish, but it is also a great spot for doing lots of skids and tricks. There I was in the dark, drifting in front of the Bowl. I haven't got much left in the way of tricks, but I love drifting. Back in '97, Peter told me that the geometry of the new buggies and the performance of the new kites should allow us to do power slides that are only limited by the space available to us. Ever since then, I have tried to drift as far as I can. When it's all good, some are hundreds of meters. Eventually I pointed it forward again and did some speedy runs in front of the car park. Off the beach at 10pm. Six days in the buggy in a row.

Wednesday, Dec. 29: Raglan. Pack up and head to the beach. The wind is blowing in the worst possible direction. Alternative: ride the grass. I just can't do it – you don't ride on grass when you live at the beach.

Still Wednesday, Dec. 29: Back at the beach at 7.30pm. No wind.

Thursday, Dec. 30: Raglan. Light offshore wind, and a feeble ride. Kite keeps falling out of the sky – three times on the ground, and I am off home.

Friday, Dec. 31: New Years Eve. Nothing.

Saturday, Jan.1, 2011: Raglan is on. I go to the 2.2 CQuad, and...it's not in my bag. That's right, its 300 kilometers away with Cudby. Why did I do that? It's my best kite. My 2.2 CQuad was brought back from China for evaluation. Once the Ashburton crew had measured and flown it, I got it. It changed a bit over the years, but it was always good. It started out with a GRP spar in the front. It sagged a little in the gusts, but

that was fine as it was like a self-reefing feature. That spar died one day in a crash when one of the spines drilled into the sand, and the leading edge bent into a very undesirable shape. I was watching it at the time (from afar) and it was quite spectacular. A carbon spar was installed and has never broken. I ripped all the left bridles off it while climbing a steep bank at the Moose Meet. I should have charged the hill and carried some speed, but I meekly crawled up it, and on one big swing the left let go, and I ended up riding down the bank backwards. I re-bridled it with an old set of flying lines and, combined with its carbon spar, it is stiff and solid. Of all my kites, the 2.2 has been used the most by far. It's more like a 3, and it's only since the twister came along that it started coming out less. Even if I got a full set of modern foils, I couldn't imagine going for a ride without taking this. Unfortunately, that is the situation I am in. It's not here. The wind is moving around and I take out my T2. I head to the Bowl, but its not working. There are brilliant moguls and a nice line through the moguls back to the beach. The south end is working well, and I end up riding funny angles with six BloKarts, two class 5 land yachts, and a home made land yacht with car wheels. I passed a class 5 last year. It wasn't really trying too hard, but I thought it was a good trick.

Sunday, Jan. 2: Raglan. Northern Al is on the beach. He has a 3.8 reactor and I have my T2. Beautiful long runs. The day Craig did 88 with my Twister, Al was pulling away with this Reactor. We don't quite get 80, but there is good solid speed to be had. I introduce our northern friend to pursuit racing: 3-1 to Al, but I got one, which was okay. We have a sneaky training session for the upcoming Restaurant Parking Competition at the Nut Buster. He takes a while to get the hang of it, but once he is dialed in, he has some good form. This all

paid off a month later when I presented him with the 1st place trophy. Don't tell anyone – I am a race official, and I should be neutral.



Al Noblet buggies around boulders in Strandon.

Monday, Jan. 3: Raglan. I head to the beach with my family. There is a solid wind, and my first choice is my 4, but it's in Taranaki. 3 or 4.2? Wimp or hero? It's a tough decision. I decide to be brave, and the 4.2 scares me a little on the launch. I settle in and am rewarded with some real speed and good long drifts. My family disappears. In my search for them, my buggy riding brother, Tom, appears from a pool of water. He runs off to the car for his 3, and before long we are taking turns doing full length runs of the beach. Tom had my spare buggy in his car, but we left it there as it is a funny old beast that is not very comfortable to ride. Matt Lord had this made in 1994. We keep it around as it has huge sentimental value and is quite useable. My good buggy is, however, very comfortable. I have spent eleven years tweaking it, and it works just how I like it. It's my third. Mark Sommerville sold me my first along with a

7.5m peel. It was a very old classic and worked well. Compared to a modern buggy, it was a bit flimsy. It was repaired a few times, but I nuked the Moose, rode the dunes, did my PB, and rode it on many West Coast beaches. Peter sold me my first Comp, and I rode it for two years. In '99, I came out of it and broke when I hit the ground. I sold it during the eighteen months I was healing. Jenny sold me my current buggy. It's a 2000 custom stock Peter Lynn Comp. It has stock parts, but mostly upgrades: long down tube, thick wall rails, composite axle, modified seat. I made the pegs, and it's set up to be light, comfortable, and stable, but a bit loose. Al's buggy is on the back of his van in the car park. I found out later he was kiting on the water – I am a bit worried about him. Water! What are you thinking, lad? You can't even drink that stuff. Tom discovers water's poorer qualities when he dunks his 3 in a pool. I have never poured so much water out of a kite, but I manage to fly it back to base camp, and it takes a long time to dry. Fantastic day. My family reappears and leaves us to it. We fly the 3 dry and keep riding until the wind drops.

Tuesday, Jan. 4: Raglan. Out on the beach with family and friends, soaking in puddles, flying kites, and making sand castles. We pass around the old family stack and it's looking fine. The 4.2 is behaving itself, the line is good, and I have a fun but slow ride with the stack. What a perfect way to finish the summer holiday.

Final tally: 14 kite sessions, 13 rides with only one dud, two night rides, a two ride day, and a six day run.

Funny thing is I used all my kites except my favorite. I got that back a month later, and he hadn't even used it.

KITE BUGGY ADVENTURE: TWO BROTHERS ATTEMPT 1000KM ALONG THE BEACHES OF BRAZIL

Harry and Charlie Thuillier



Harry Thuillier



Charlie Thuillier

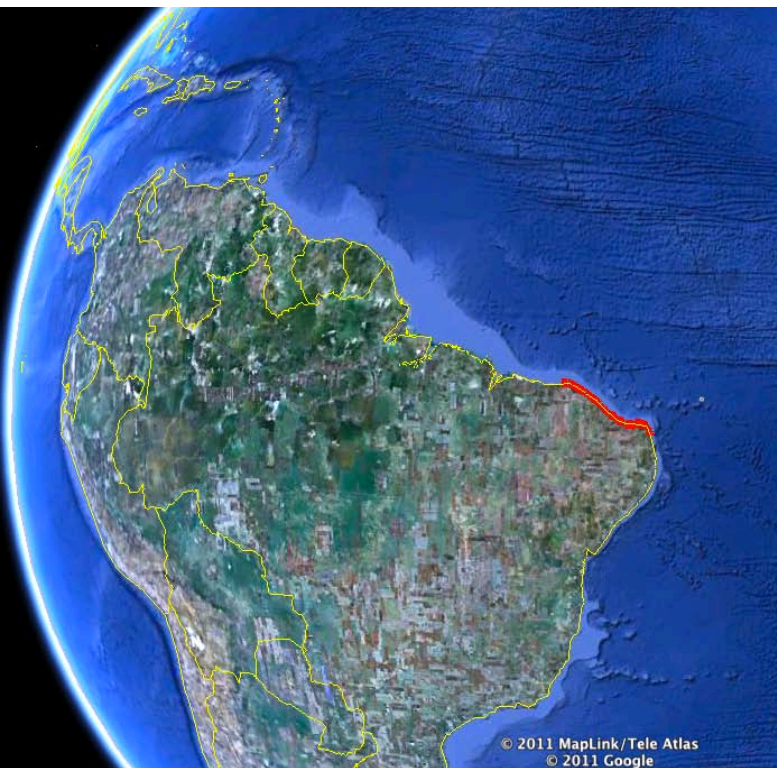
ABOVE: Learning to zig zag downwind as the sun sets over the coast of Brazil. LEFT: Brothers Harry (left) and Charlie with their bugging equipment.

Harry and Charlie Thuillier are two brothers from the United Kingdom. This August they decided to kite buggy along the coastline of Brazil from Natal to Jericoacoara. They did it without vehicle support, without being able to speak Portuguese, and having only had one lesson in kite bugging. Harry takes up the story...

As we bolted together the buggies, strapped on our bags, and set up the kites on a windswept beach in Natal, Brazil, a few local kids and dogs stood in the doorways of shacks and watched curiously. Atlantic waves crashed against the sand, their roar muffling against the cliffs that rose from the beach behind chattering palm trees as we

laid out kite lines and bars and put on our helmets. We knew the learning curve for what we were about to do would be steep but we were raring to go.

A few months ago, Charlie and I had a crazy idea. To go to Brazil and kite buggy 1000 kilometers [about 620 miles] along the Northeast coast from Natal to Jericoacoara. It's one of the windiest places in the world, with hundreds of miles of beaches interspersed with dunes, mangrove swamps, rivers, and fishing villages. As far as we knew, no one had attempted to kite buggy this distance before without full vehicle support.



We asked Craig Hansen (member of the record breaking kite buggy team who crossed the Sahara and manufacturer of the PLK Outlaw buggy) what he thought our chances were. He had a few questions. "Have you kite buggied before?" No. "Has anyone buggied that stretch of coastline?"

No. "Will you be using vehicle support?" No. "Do you speak Portuguese?" No. He concluded: "I think you're mad, but I don't see why you can't do it."

I had butterflies in my stomach as the plane descended over the coastline of Brazil and into the start point of Natal, laden with the 150 kilograms [about 330 pounds] of gear we had managed to bring by pleading with the airline at the check in desk while wearing our Centrepoint charity t-shirts.

As our adventure began we realized that even for an experienced buggier much of the terrain was often awkward and offered little margin for error, let alone for two guys who had only had one lesson each. Although some of the beaches and dunes were a kiter's paradise, deep streams that appeared out of nowhere, narrow beaches, palm trees, wind turbines, fishing boats, and sharp rocks meant it took 100% concentration. I made the first error just half a kilometer into the journey. At Genipabu, a village just north of Natal where the wind was cross shore and therefore directly behind us, I overtook my kite and caused it to drop out of the sky, before running over the lines and tangling them around my axle. With 999.5 kilometers to go, this was frustrating and the first of many lessons.

Despite the abuse, the Ozone depower foil kites took our incompetency in their stride. Two 4m Access XT kites became our workhorses. At higher wind speeds they still generated a lot of power but were stable to control. After a few hundred kilometers our confidence began to increase. We began using 7m and 9m Frenzy kites which were more dynamic than the Access XTs and had to be treated with more respect.

Using wind power alone was part of the ethos of this adventure, and we had already decided we didn't want a vehicle to follow

us – even if budget for it had been available. The idea was to use kite bugging to explore an unknown coastline under our own power without relying on the assistance of a 4x4.

This is a nice idea but it presented several challenges, and we had to navigate around impassable terrain on foot. Our progress was often dictated by the tides, and we had just a few hours in which to kite each day before high water would make it impossible to pass, with tides in the sea on one side and palm trees threatening to catch the kite on the other. Even at low tide it was a little nerve racking coming up to a headland and navigating a course under the cliffs, hoping the water was low enough to pass all the way through.

With unreliable maps, our almost non-existent grasp of Portuguese, and contradictory local opinion on the route, we ended up hauling the buggies further than we anticipated, walking as much as thirty miles a day on several occasions to avoid river deltas and mangrove swamps – the shoulder straps from BuggyBags.co.uk proved invaluable.

The terrain meant that our progress was slower than planned and the money that was meant to last until we reached Fortaleza was almost extinguished 300km (4-5 days bugging in good conditions) short of the city. With village banks not accepting foreign cards, our funds were running low despite our efforts to save by eating once a day and buying from stalls. We also saved by sleeping in our hammocks in basic *pousadas*, where you had to look where you were stepping for the cockroaches and rat droppings! Despite this frugality, when we got to the town of Macau we made the hard choice to dismantle the buggies and try to reach one of the international banks in Fortaleza before our

money ran out.

After a series of lifts by VW dune buggy, wooden raft, and bus (where we bribed the conductor to let us take our 150kg of luggage on board), we finally found ourselves in Fortaleza, the largest city in the state of Ceara. It was night time. With our last 50 reals we convinced a taxi driver to rope our buggies to the roof of his ancient Peugeot and drive to the city center, where to our relief we found a bank that would let us withdraw cash, enabling us to get back on track with the trip.

Whenever we slowed to walking pace around villages and towns, we were followed almost constantly. The people were incredibly friendly and always eager to help. In a fishing village called Aranau, curious children emerged in twos and threes and followed us for miles, chirping questions in Portuguese, kicking the tires, opening our bags, and jumping in the buggies. Perhaps this was because a foreigner was such a rare sight, or that people's ideas about personal space are so different in Brazil to England, or that we were hauling each other along in odd vehicles adorned with bags and camelpaks that ironically looked like fuel tanks.

With no support vehicle, we carried all necessary spares, but the strong design of the Outlaw buggies (developed for the more extreme Mad Way South expedition in the Sahara) meant that no repairs were required. The Ultraseal tire sealant we had treated each big foot tire with no doubt saved us from punctures on occasions when we ran over cacti, broken glass, and sharp stones, although there was one close encounter. A wheel collision near the end of the trip in a remote spot east of Cruz damaged a valve, rapidly deflating the right tire on one of the buggies. This meant a tense stop, with two of us tentatively



Harry Thuillier

The brothers hauled their buggies on several occasions to avoid river deltas and mangrove swamps. On this day, they walked miles, pulling the buggies with shoulder straps.



Harry Thuillier

Swimming a river too wide to kite across, contending with strong currents due to recent heavy rains inland.



Harry Thuillier

Untangling kite lines on the beach.



Harry Thuillier

Charlie buggies at sunset. Harry writes: "I had heard about the state of 'flow' from adventure kite surfer Louis Tapper – where the challenge and your competency meet and you find yourself fully absorbed and satisfied in an activity. At times I think we were both lucky enough to experience it."

pushing the tubeless tire off the rim to fit a new valve and whooping with relief when it popped back on.

But any setbacks were worth it for the feeling of flying along, knowing the buggies could handle almost anything. When you're traveling at speed, kite buggying feels like the best mode of transport in the world – salt spray rushes past you and the tires make a humming sound as they glide over sun-baked sand. The kites soar overhead, scattering wildlife like a bird of prey, and the look on people's faces as you race past them under wind power alone is priceless.

As we started going faster and further, buggy control became more of an issue. Hitting large obstacles and bumps meant staying seated was easier said than done. Both of us had some epic "out of buggy experiences," and our full-face helmets paid for themselves. Carrying all our supplies (and even a local passenger each one day!) there was a lot of inertia when starting and stopping. When the kite generated more power than our balance and legs could handle, we had several unintended flying sessions – often ending up 10 meters from our buggies, head first in a dune.

Another challenge was hidden streams. We would often find ourselves traveling at 30mph to suddenly see a river, twenty meters wide with a two foot drop-off into the water. Craig Hansen had told us the buggies could float with us in them, but with the 30kg extra gear we were carrying, we initially didn't want to try it, preferring to pack down the kites and swim, pulling the buggies behind. But one day we tentatively steered down a river bank whilst flying the kites and found that the buggies did indeed float despite the extra weight! By the end of the trip we were taking a few seconds to power through rivers that might previously have taken an hour to cross.

The need to focus on negotiating the terrain in high winds meant kite control had to become second nature, or risk having too much or too little power. This came with practice as we progressed up the coast, and once we had gained in confidence we even challenged Louis Tapper (a Kiwi kite surfer who broke the record for the longest distance travelled without vehicle support in 2010) for a race downwind between Cumbuco and Icaraizinho. Although our straight line speed was slightly faster, Louis won by cutting across the bays, which we thought was cheating!

As we travelled the final kilometer of our trip, I remember thinking how lucky it was that we had had no major accidents. At that very moment I saw Charlie's kite heading for a set of power lines.

We were on a bumpy coastal sand track which served as the only route into our destination, Jericoacoara. It made for some exciting buggying, especially as we were now sharing it with 4x4s heading into the town and had to keep right. Charlie was just ahead of me. With the late afternoon sun in his eyes, he had been focusing on an approaching blind corner and not on the sky. By the time I noticed the cables, obscured by the setting sun and the shadow of a hill and yelled out, the lines had hit.

A bright white flash, a high pitched hum of hot metal, and one of the cables broke, narrowly missing Charlie and hitting the ground. We both paused for half a second, in shock, as the fallen wire set light to a pile of donkey manure. After alerting the power company and walking the final couple of hundred meters into Jericoacoara, thankful that at least no one had been hurt, we realized we had made quite an unintended entrance. Candles illuminated dimly lit rooms. Ceiling fans hung still. The streets were black. This wasn't the finale to the

journey we had anticipated, but luckily the power came back a few hours later with a cheer from the locals, and we were able to reflect on the whole adventure.

It had been odd but exhilarating to wake up every morning and have little idea of what was around the next bay. Learning the sport at the same time as exploring new territory was mind blowing. All our senses were constantly occupied, scanning the ground ahead and looking out for each other as we crossed terrain that no one had ventured over in a kite buggy before. I had heard about the state of “flow” from adventure kite surfer Louis Tapper – where the challenge and your competency meet and you find yourself fully absorbed and satisfied in an activity. At times I think we were both lucky enough to experience it.

The frustrating thing was that we only started to become competent in the last week or so of the adventure. With more knowledge of the terrain, the sport, and the people along the route, we wanted to go back to the start to do it all again! But that’s what adventure is about – it’s all about the learning and the journey.

To watch onboard videos and leave your comments on the trip, go to www.kitebuggyadventure.com. The Thuillier brothers have been raising funds for Centrepont, a charity which supports and houses homeless young people in the UK. You can donate here: www.justgiving.com/brazilkitebuggyadventure

THANKS TO:

Ozone Kites, PLK Outlaw Buggies New Zealand, OceanSource.net, Computer Solutions NZ, BuggyBags.co.uk, 2C Solar Light Caps, New Balance Shoes, Video VBOX GPS, Club Ventos, Serrote Breezes Jericoacoara, Ultraseal, SB Kites, and everyone who has donated to Centrepont.

THE GEAR:

- Ozone Depower Kites
 - 2x 4m Access XTs
 - 7m, 9m, 11m, and 13m Frenzys
- PLK Outlaw Expedition Buggies with Racks
- Beach Racer Tires on steel rims
- Ultraseal tire sealant
- All bags from BuggyBags.co.uk
- New Balance All Terrain Shoes
- 2C Solar Light Caps



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