

# HUFF



**Head Up Feet First is the Newsletter of OzHPV Incorporated.**

OzHPV can be found at [www.ozhvp.org.au](http://www.ozhvp.org.au), or contacted by mail at OzHPV Inc, P.O. Box 189, HRMC NSW 2310.

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## *Welcome and Merry Christmas message*

*by Peter Heal*

G'day and welcome to a "last gasp" HUFF for 2007. El'Prez Pete in the editors chair.

Here's hoping youse all have grouse Chrissy.

Seriously though, as indicated in the previous issue of HUFF our enthusiastic editor was finding it difficult to continue putting the newsletter together and needed to step down. The position of Editor wasn't actually filled at the AGM although two members did offer to be correspondents and assist with the preparation of the newsletters. We are still looking for a newsletter editor to pull it all together. Your contributions are very welcome on any subject relating to Human Power vehicles.

Please send any contributions to [huff@ozhvp.org.au](mailto:huff@ozhvp.org.au)

In 2008, we will endeavour to produce HUFF quarterly in March, June, September and December.

In 2008 the committee looks forward to your support and lots of recumbent and HPV activities



## *Beechworth AGM Weekend*

*What a great weekend this was with 22 or so members making the trip to Beechworth in November for the AGM riding and general socialising.*

**The Canberra Mob made up the bulk** with 10, but there were also participants from Melbourne, Portland, Geelong and Albury.

We had great weather (sometimes quite warm), good company and good riding on the Murray – Mountains rail trail and elsewhere around Beechworth.

*Dinner in the local pubs both nights were fun events with much laughter and discussion taking place.*

The AGM held on the Saturday was short and to the point with the current committee returning for another term. Some important aspects concerning OzHPV and HPVs around the world were discussed with much enthusiasm.

Steve Nurse gave the meeting a summary of his latest Modular design for recumbent construction incorporating cast aluminium lugs and bolt together concept. (see article elsewhere in HUFF)

Participants got the chance to try out and “sniff” a wide variety of recumbent designs and setup arrangements.

The cicadas were very loud.

All went away with a warm fuzzy feeling promising to do the same thing again soon.

A great weekend with great bunch of people.

Such a shame more members couldn't have got there.





*John Perrin President of the Casey-Cardinia HPV & Cycling Club gives us an update on non-OzHPV human power events around the country.*

**Human Powered Vehicle (HPV) events** have been operating in Australia since 1989. The category by participation numbers is the "Schools Rules" events

The "Schools Rules" events were originally aimed at school aged children, and usually have some specific educational outcomes in mind. These events have grown every year in attendances, and now operate in S.A., Victoria, Queensland & Tasmania. Some prime examples of these include the "Australian International Pedal Prix" series in South Australia (refer [www.pedalprix.com.au](http://www.pedalprix.com.au)), or the four events in Victoria which operate one each school term (refer <http://www.racvenergybreakthrough.net/>), or the Tasmanian 6 hour event held each April (refer [http://www.rosny.tased.edu.au/News\\_and\\_Events/HPV%20Event/hpvEvent.htm](http://www.rosny.tased.edu.au/News_and_Events/HPV%20Event/hpvEvent.htm)) or Queensland's Maryborough Technology Challenge (refer <http://www.mtcqld.com.au/mtc/index.php>).

These events are often referred to as "Schools-Rules" because of their heavy emphasis on safety requirements & vehicle scrutineering qualification before being allowed to participate. However many of these events allow adult riders to also participate. The objectives of many of these events are to encourage participants to explore the technical and physical challenge of taking part in competitive HPV events.

Most of the "Schools-rules" events are so popular that places are often fully booked out within hours of registrations opening! The AIPP event in SA attracts over 20,000 people to Murray Bridge every September. A similar number of visitors also arrive in Maryborough (Victoria) each November, for the "RACV-Energy Breakthrough" which attracts over 7,000 active school aged participants during their 4-day event. The smaller events held each year in Victoria, Maryborough (Queensland) and Hobart are all growing at amazing rates, with the number of participants more than doubled in the past three years!

Benefits to participants in any of the HPV events include....

- Understanding environmental benefits of human power
- Technical understanding of HPV's, including aerodynamics and efficient vehicles
- Physical fitness and recovery from exercise
- Developing innovative alternative transportation solutions

There are no "Schools Rules" events being held in NSW or the ACT at present although the Canberra chapter of OzHPV has shown interest in getting an event happening on their fantastic new criterium track at Mt Stromlo Forest Park. Discussions are also under way with several schools in NSW, who are keen to see this activity started in their state also.

Participants moving through the "Schools Rules" events still want to participate and compete in HPV's after they leave school and events aimed at the "Serious Adult" HPV rider are becoming popular.

# Human Powered Vehicle Events





Above, below left and below right - Maryborough 2003 Grid and lineup

In Victoria the Human Power group organise events at the Casey Fields track on a regular basis. The track is also available for regular practice sessions most Sunday afternoons, although at this time, the track must be shared with other members of the General Public.

RACV-EnergyBreakthrough, Casey-Cardinia, Maroondah ([www.zoom-maroondah.com.au/](http://www.zoom-maroondah.com.au/)) & Wonthaggi ([www.wonthaggisc.vic.edu.au/hpv/index.html](http://www.wonthaggisc.vic.edu.au/hpv/index.html))

OzHPV members are welcome to participate, and are encouraged to contact either Mr Steve Nurse or Alan Ball of the Victorian OzHPV group for more information.

Recently the OzHPV group have been working together with some of the "Schools Rules" event organisers, with a joint aim of trying to get more events for all types of HPVs and recumbents happening. Keep watching this space for more news and latest developments!



## A Canberra Human Power Event

As mentioned in John Perrin's article, whilst "school rules" Human Power Vehicle events are very popular in many states of Australia there are no such events and only little interest in the ACT and NSW. OzHPV wants to do something about that as we see great flow on benefits for our past time and sport.

OzHPV would like to seed the interest and provide technical support to some other groups that would want to also see such events take place.

John Perrin from the Human Power Group based in Victoria which incorporates all the groups apart from the Adelaide International Pedal Prix mob recently visited Canberra after a business trip to Sydney. John spent half a day with Pete and Alex from the OzHPV Canberra Mob taking a look at the various tracks and courses available in Canberra. These included Exhibition Park, Sutton Road and Mt Stromlo. John's experience in running this type of event was valuable. The Mt Stromlo cycle facility was the obvious choice for a start out event although Exhibition Park could be used if such events ever reached the participation numbers experienced in other states.

In Canberra we are blessed with a one year old dedicated criterium track which is basically a 1.2km dog bone shaped track with a smooth surface, gentle gradients, tight corners and good support facilities.

As stated above OzHPV in Canberra doesn't have the resources (and perhaps the interest) to run such a big event on an annual basis but we would like to help get something happening.

It's possible that a trail event may be organised at the Stromlo track in Canberra mid 2008. 



# Pete Goes To France

words and photos by Peter Heal

**If you had asked me** mid 2007 whether I was going to France for the Paris-Brest-Paris (PBP) Audax ride to be held in August, I would have told you no. So what prompted me to change my mind within two weeks of the application close off, book flights to France and actually go? Hmmmm.

PBP is purported to be the pinnacle of long distance Audax rides and a “must-do” for every rider involved in endurance cycling events like Audax. Riders come from around the world every 4 years to take part in the 1,200km ride through the French countryside. A ride of that distance is not for everybody particularly as the maximum time allowed is 90 hours, but even so over 5,000 riders entered for 2007.

I had already achieved the compulsory qualifying rides of 200km, 300km, 400km and 600km so when I did make my decision to go, I only had to send off my application and book a flight to Paris. My good wife agreed to me staying a bit longer while I was in France so in all I had 4 weeks in that great country.

Now, the PBP ride. How do I describe it? Apparently the weather in 2007 was the worse experienced on a PBP for over 20 years. Subsequently there was a lot of rain, coldness, darkness and wetness. All this contributed to blurring my memories of the ride or of my brain blanking out the bad stuff.

*The Lizard loaded*

Over 200 recumbents and tandems set off around dusk in their own start block. That was a fantastic experience riding with so many other bents of all types including velomobiles, tandems and row bikes. We set off in the rain and dark to the cheers of the crowd.

Somewhere soon down the road my front wheel went twang, clunk, clunk, clunk. Rats!, a broken spoke and lost computer magnet. I quickly removed the offender and caught up with my bent buddies. Not so long after we reached the countryside and another spoke went. 16 spokes left in an 18 spoke radial wheel is not so good so I stopped in the dark and rain and did a replacement job. The bent and tandem mob left me behind. Changing the spokes wasn't such a difficult task. Another bent rider who caught me up was amazed that I had actually done this on the side of the road in the dark and rain. For the rest of that night I motored along and caught many of the bents and tandems. There were some very strong riders amongst the benterers.

Anyway the wetness continued virtually all the way to Brest, the 600km point and I arrived there early on the second day after about 34 hours.

Things started getting a little worse for me from here as a chest infection of some sort started to make its presence known. I decided to take it a bit easier from then on. Maybe I could have gotten back within 70 hours if conditions and





*On the starting line*

health had been better. I was quite pleased to do the return leg 48 or so hours including a few sleeps. This last leg was very blurry. The last night into Dreux was a nightmare with my sense of balance and orientation being effected by a floppy neck (Anti-Shermer's Neck?). The road seemed to slope dramatically with riders at ridiculous angles like on the banking of a velodrome. The route seemed to be endlessly circling a hill top for many kilometres and the roadside view of generic pine tree plantations seemed to never change.

I was very pleased to reach the penultimate control at Dreux late on the third night. One of the Audax Australia volunteers was at the control and was gently guiding and assisting Aussie riders to food and a place to sleep. Some Aussie riders reached Dreux thinking it was the finish only to be made aware they still had another 100 or so kms to go. I slept at Dreux and set off about 4:00am with another group of Aussies in the rain, reaching the finish around 8:30am with a total time of some 83.5 hours.

Many riders on PBP fully utilised extensive support crews at the controls consisting of motor homes, masseuses, pitched tents and people to do everything for them. The riders who return the incredibly fast times on PBP are in and out of the control points in a very short time.

The wet weather caused many abandonments due to crashes, injury, cold or just not "going fast enough to get

a good time". Overall out of 5302 starters something like 1,700 abandoned, didn't start or finished out of time. There were six Aussie recumbent riders in the 2007 PBP and only two completed the event within the time cut off. I don't know what that indicates other than this was a very tough event.

I met many recumbent riders from around the world and it wasn't necessary to converse in a common language. Overall it was a good experience for me. Would I do PBP again? – probably not. Would I go touring in France again? - You bet.

The remaining 2 weeks of my time in France saw me touring with camping gear around the Provence region of Southern France which I really enjoyed. I visited many small villages, castles by the dozens, rode over alpine passes through deep gorges and climbed Mont Ventoux. In retrospect, this second part of my holiday would have been more enjoyable utilising a vehicle and doing day trips of selected highlights. It would have also been much more enjoyable in the company of some mates to share the fun.





## *From Pete the Prez.*

### *President's Report 2006-2007*

#### **2006-2007 was a challenging and somewhat disappointing year for the OzHPV.**

As with previous years, the Committee received little feedback from membership in relation to activities of the Association.

This was OzHPV's 11th year since its incorporation.

Membership remains static even though there has been an increase in the general interest in recumbents around Australia.

There would appear to me to be many "hangers-on" on the various OzHPV web forums. By hangers-on, I mean the individuals that are more than happy to take whatever information is circulated around but do not feel the need to become a member and support the association. It's difficult to convince these people to become members. Part of the problem may be the reducing number of benefits we are currently able to offer and the rise of the internet as a huge source of information available on HPV's in general.

Even so during the year, the enthusiastic and dedicated members of OzHPV have continued to organise a range of activities including:

- The OzHPV Challenge at Casey Field which attracted over 20 competitors and 80 spectators
- Regular Be-Spon rides in Melbourne
- Weekly Canberra Mob breakfast rides
- Weekend rides in Canberra

Our Newsletter and Website suffered setbacks while the enthusiastic Editor and Webmaster had family health issues which took them away from OzHPV duties.

We will need to rethink how these two information conduits are managed as they are critical to OzHPV.

Gaining new members is difficult and requires some new approaches as does the task of ensuring existing members stay with us.

During the year OzHPV effectively drove an email barrage at Bicycle Victoria to reverse an unusual decision to ban recumbents from the annual Round the Bay ride.

Extended discussions took place with the WAHPV group on their web forum in regards to their formally becoming a chapter of OzHPV and be covered by its incorporated status and insurance protection. The response was very indifferent and there were a few comments such as "why support and East Coast organisation?" At present WAHPV is an unincorporated group with no membership status, committee or structure. The group simply wants to stay that way and expressed no interest in membership of OzHPV or any of the benefits.

Promotion of the association continues by the efforts of our more enthusiastic members with OzHPV appearing at

- The Sustainable Living Festival in Melbourne for 3 days
- Motorcycle run to Phillip Island
- Come and Try events in Canberra and Melbourne

There are many things OzHPV can do in the coming year including:

- A new location for The Challenge
- Velodrome racing events
- Regular racing events at Club level which involve minimal cost or organisation input
- Social "Rally" style weekends away in country locations
- Speed events and record attempts

All these ideas require the support of the members to get things going.

It doesn't take a lot of input and the more members that can be involved the better.

So, thank you to all those that have supported OzHPV and the Committee during this past year. Please continue to give the Committee your ideas and support and hopefully 2007-2008 will be one of the best years ever for OzHPV.

*Peter Heal*

*President*

*24th November 2007*



# The 2008 Challenge

The 2008 OzHPV Challenge will be held in the Albury Wodonga region on the weekend of April 4th and 5th.

Albury was selected as suitable for next year's event given its midway location between our main centres of Canberra and Melbourne and the availability of suitable venues such as very nice go-kart track and an outdoor velodrome.

Expect some different events this year such as a 200m speed run on a country road and various velodrome style races on the Saturday evening.

It's hoped that a start around noon on the Saturday and mid afternoon Sunday finish will allow ample travel time for participants.

Start making plans now to attend.

More details will be circulated as they become available.

## *OzHPV Committee and Positions*

Following the OzHPV AGM held on 24th November the following Committee and positions were filled or remain vacant.

**President – Peter Heal**

*President@ozhpn.org.au*

**Secretary – Duncan Cleland**

*Secretary@ozhpn.org.au*

**Treasurer/Membership – Tim Marquardt**

*Membership@ozhpn.org.au*

**Public Officer – Chris Curtis**

**Newsletter**

*Huff@ozhpn.org.au*

**Editor – Vacant**

**Correspondents – George Durbridge (Melbourne) and Paul Worden (Portland)**

**Web Site**

*Webmaster@ozhpn.org.au*

**Webmaster – Vacant**

**Correspondents - Vacant**

**Regional Contacts – please refer <http://www.ozhpn.org.au/stategroups/stategroups.html>**



# Big at the Front!

words and photo  
by Stephen Nurse

**Front wheel drive recumbents have a few advantages** compared to conventional rear-wheel drives. The chain can be short and there are fewer control cables going to the back of the bike. There are disadvantages too, like limited steering, slipping front wheel and “pedal steer” in some variations.

Another problem with front wheel drive bikes is that the wheel at the front is usually small (cruzbike and some zox bikes are exceptions), close to the rider and therefore sensitive to bumps. It’s hard to make suspension on the front wheel and the end result is a harsh ride.

So starting with a twisting-chain-and pulley bike (called Zeica) I made a few years ago, I have been building front wheel drive bikes that have the big wheel (24, 26 or 27”) at the front and a 20” at the back. The big wheel at the front helps with the suspension and means you can use fairly standard parts to get the right distance travelled per crank revolution.

The bikes I’ve developed over the last year dispense with the intermediate pulley (found on the Zeica and Zox) and keep the standard-bike fork rake of about 70 degrees. The layout ends up something like some American long wheelbase bikes with tiller-style steering. The rear wheel of the bike is suspended, and it’s easy to fold the rear triangle under the bike to make the whole thing more compact.

A hack prototype was built in late 2006 and had started life as a 20”, six-speed bmx with suspension, but the first proper bike has a cro-moly steel main boom and rotary-laser-cut steel end pieces which are the same front and back. The end pieces support the bottom bracket and steerer (front) and the rear suspension pivot and seat (back). This bike has completed 50-70k per day, twice weekly commutes, 100k training rides and the 210k “Round the Bay in A Day”, all without fuss or serious mechanical problems. The puncture Gods have even been kind but I managed to bend a few mild steel frame tubes before going for chro-moly!

While building the all-steel bike, I started to think about alternative ways of making it. First, a wooden recumbent was made using laser-cut flats to secure parts to the timber.

Later, I put a lot of work into designing a casting that would do the same job as the rotary-laser-cut end pieces. At work I deal with 3d Cad and aluminium castings and am familiar with the rapid prototyping and dies used to make them. After getting a quote for some

parts, I approached the diecasting firm Sankey Australia for sponsorship and soon after received funds that let me proceed with the quote. Thanks to Andrew Mitchell and Sankey!

And now I have the result of the work with the castings. The newest bike takes some design cues from the wooden bike and has a 24" front & 20" rear wheel, 2 V-brakes on the front and no brake on the back. The lower part of the rear triangle is horizontal and "out of the wind". All the control cables run through the steerer tube. The front and the back of the bike aren't joined by control cables and can be separated for transport. The latest parts are a fibreglass seat from Flying Furniture and a small corflute tailbox.

The bike is designed to have the identical frame castings used 4 times and to eliminate all other complex arrangements in the frame. Once a die was made the castings would cost maybe \$5.00 each and the parts are designed so a die would not be hideously expensive. If the bike were produced in volume, the result would be an inexpensive and fast recumbent cycle.

I am interested in hearing from manufacturers interested in producing these bike designs and have taken provisional patent protection on the intellectual property. Within a few months I plan to publish some details of the designs. Meanwhile I can supply individual requests for plans and parts at a price to be negotiated.

(Note: The bikes were built with inspiration from the "Bevo" bike, but recently I discovered a "long lost relative" of this type of bike which is a bit more sporty than the Bevo. The bike is a custom built Rotator and it appears in the book "The recumbent bicycle" by Gunnar Fehlau. It was ridden by Matt Weaver to win a road race for unfaired bikes at Battle Mountain in America and can be seen online at [http://www.recumbents.com/wisil/whpsc2003/images/ArneHodalic/DSC\\_1409g.jpg](http://www.recumbents.com/wisil/whpsc2003/images/ArneHodalic/DSC_1409g.jpg). The steel version of the bike is for sale and can be seen on the OzHPV website "for sale" page)

**modularbikes.com.au**

Regards,

Stephen Nurse

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## OzHPV Coming Events

**January 08** – OzHPV Track racing at DISC Indoor Velodrome, Thornbury, Victoria. Date to be confirmed. Sessions would be 2 hours (6-8pm) Initially we could conduct an informal how to session afterwards if someone has a request, or perhaps a drink at the bar of DISC.

Contact Tim Marquardt  
[themarqs@netspace.net.au](mailto:themarqs@netspace.net.au)

**January & February 2008** – OzHPV Track racing at Canberra "Bundahdrome". Outdoor velodrome in suburbs of Canberra. Low key fun event initially to see if participants enjoy it enough to do on a regular basis. Probably Saturday afternoons depending on availability.  
Contact Pete heal@cyberone.com.au

**27th January Australia Day Weekend 2008** - Maryborough HPV Enthusiasts annual 63km time trial and social rides. To be confirmed. Contact: William Reid

**4th & 5th April 2008** – The 2008 OzHPV Challenge. Albury Wodonga region. Racing and events on closed road speed trial, velodrome and twisty go-kart track. More details as organising progresses.  
Contact Tim Marquardt  
[themarqs@netspace.net.au](mailto:themarqs@netspace.net.au)

**17th & 18th May 2008** – Social Rally Weekend in Cowra NSW. Organised by the Canberra Mob. 196km Canberra, 306km Sydney, 667km Melbourne, 939km Portland.

# *From Beijing to Paris On bicycles built by two*



*Words and pictures By Dr Olly Powell – Mad kiwi solar cell scientist*

## **“Will anyone agree to travel without automobile, in the summer of 2007, from Beijing to Paris”, [www.beijingtoparis.com](http://www.beijingtoparis.com)**

Sixteen cyclists, from six countries took up the challenge. It was to be a disorganised expedition. No support vehicles, no fixed itinerary or starting time. Riders made all their own plans and chose their own transportation. Some rode in groups, some solo.

In all we had four Taiwanese factory-made recumbents, one from Germany, a home made Penny Farthing, several “normal” touring bikes, and of course the two SWB recumbents Ting and I built.

I began planning after moving from New Zealand to Adelaide, around the start of 2005. My goal was to complete the expedition in four months with my partner Wu Yi-Ting, on home built bikes.

The design phase was a mixture of trial and error with two Taiwanese SWB recumbents plus around 300 hours of computer modelling. When I was ready to begin construction it was to have a Kevlar tailbox/seat, full suspension, 406mm wheels, polycarbonate front cowling, and the frame was to fold into the tailbox whilst in transit.

As is always the case, the final bikes varied rather a lot from the original concept. The tailbox was replaced with a one-piece pannier, that slid down over a Kevlar/carbon fibre composite seat. The pannier was held out to a point by an aluminium rod threaded up the back. Sewing each pannier took about a week of working into the small hours of the morning. The cowling was abandoned entirely.

Pneumatic rear suspension was donated by Cane Creek, and front suspension was built into the hub. The rear wheel was symmetrically built for strength, and the frame was offset to compensate. I used a disk brake on the rear to avoid wearing down the rims on down-hill sections. Emergency braking was to be done with V brakes on the front. The frame was all using 4130 chromolly, bronze welded with oxy-propane. In all it weighed around 15kg, including panniers.

*Above- Olly and Ting in Kyrgystan*

*Above right - Fong Huo Lun in Adelaide, without panniers*

*Below right - Ting crossing the Gobi Desert*



Ting and I were immensely relieved to cross Russia without major incident. One of our other team members had required four hours surgery on his head, two had gone home after being robbed at knife point and a fourth had had her bike stolen. Russian drivers were by far the worst of the whole trip. The roads were narrow and potholed, traffic heavy and they were constantly overtaking one another at high speeds, in both directions. They never gave way to oncoming bicycles. Little surprise, the only

other bikes we saw were three other foreigners.

From Ukraine onwards bikes re-appeared and things just got better and better. By this time we were under-equipped for the bitterly cold head wind and frequent rain, but the scenery was fantastic, and the roads were improving. We were physically exhausted, but in high spirits.

On reaching Dresden, Germany we had 14 days left to reach Paris. The weather was lousy and we had not rested since Saratov, back in Russia. So we gambled our last two rest days at once, in the hope of better weather and no brakedowns.

Finally we raced across Western Europe at 110km/day, through beautiful cycleways along several German rivers, then quiet French country roads all the way to Paris. Arriving on 10 October, precisely four months and 12,594 km after leaving Beijing.

I had Greenspeed shorten the cranks, 130mm for Ting and 152.5mm for me. This effectively gave us similar gearing to a MTB but without enormous chain rings, and the smaller cranks were more comfortable anyway. A word of caution is needed here. At the time of writing I haven't had full feeling in my big toes since Eastern China. This was a result of using too low cadence initially, thus putting too much pressure on the ball of the foot. The problem was likely worse due to the crank length.

The trip was an epic adventure from start to finish. We crossed China in 39 days. Friendly honest people, sand storms, 40 knot cross winds, coal dust, deserts, temperatures up to mid 40's. Just like Australia! But this was the easy part.

In the section from Kyrgyzstan-Kazakhstan-Russia section the roads deteriorated and there were at least seven serious safety incidents amongst the 16 team members, either violent robberies or road crashes. I crashed at 45km/h into a large rock left on a road in Kyrgyzstan. The force was enough to bend my forks back 50mm, but nothing was broken except skin. I was also hit by a truck in Kazakhstan. The truck pushed a spare wheel I was carrying on the back up into my seat. The Kevlar was dented, and a crack formed in the back, but it lasted easily to Paris.

To be fair on Kazakhstan, the people were ridiculously friendly, and it wasn't nearly as dangerous as Russia. In one period of 24 hours we were given boxes of chocolate on three separate occasions by passing strangers!



To anybody thinking of such a voyage themselves, I suggest taking a train over the middle section, it was just far too dangerous, and a lot of bureaucratic hassles, trouble at borders, expensive visas, hotels etc. I would recommend taking sufficient rain gear for the whole trip, we were a little miserable at times trying to cross high passes in pouring rain with only our light cotton desert-clothing.

I would also suggest going at a different latitude, or travelling West to East. We had strong head winds almost every day for the last 7000km!

In the bike building I made four notable mistakes. The first was to set my chair on fire by putting down the welding torch without turning it off first. The second was to only use regular "safety" glasses with the angle grinder. Eventually a spark made it around the edge and into my eye. Having it removed required an eye specialist and a needle, and was a very unpleasant experience! After this I went out and bought some more serious safety goggles, with rubber seals that push up against my skin all round.

The third was to re-drill Velocity Aeroheat rims to take a Schrader valve (more commonly available). All four rims cracked in the place I drilled after 6000km. But full credit to velocity, they lasted another 7000km and counting!

The final mistake was my tyre choice. The new Schwalbe Marathon HS368. This product is defective and should be recalled. Ting and I had around 40 punctures. Eventually two tyres were thrown away because the steel beads broke.

A few days after reaching Paris I slipped quietly back to Adelaide, and returned to work. For Ting and I this was a once a lifetime event, I put so much effort and personal resources into it that I couldn't possibly attempt such a thing again. Our memories are of extreme highs and lows on an almost daily basis, but thankfully many more highs!



*Arrival in Paris, meeting another Team member Aaron Huang on the Trocadero*

