

From the editor

This is a friendly reminder to post in your 2005 OzHPV membership renewal with fees if you haven't already done so. This form was sent in the last HUFF but if you have misplaced yours a copy can be downloaded from the OzHPV web site at <http://www.ozhpbv.org.au/>

As the file is in Adobe Acrobat format I may have been amiss to point out how you could fill in the form. There are several ways but all include printing out the form and either posting that in with the fees or filling out the printed form then scanning and emailing. To be honest this isn't a brilliant way so we will try and come up with better options for next year.

You may notice we have a change for the B&W printing of HUFF now with David Henshaw taking up the job from Bernard Weir with it printed once again on A3 paper.

Timothy Smith - tas@ozhpbv.org.au

How to Ride a Bike Downhill

This may seem to be an unnecessary topic, since one doesn't even have to pedal when descending a hill. However, some people are afraid of high speeds on a bike, and others don't know how to descend a winding road quickly and safely.

First, some people believe that bicycles are not safe at high speeds. There are some bikes, which are not. If the brakes work poorly, if the spokes are loose, if the hubs lack grease, or if the frame or fork is out of alignment,

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Canberra Rally

The second OzHPV Canberra Rally took place on 12, 13 & 14 November with riders from SA, VIC, NSW and QLD joining the Canberra Mob for a weekend of rides and food.

Friday afternoon saw a gaggle of 7 trikes and a couple of bikes being "herded" around bike paths in the Belconnen area including a lap of Lake Ginninderra and a stop at a lakeside pub for a drink or two. It's amazing how the time for a given ride seems to increase exponentially with the number of trikes in a group. Motorists at many of the traffic lights who stopped to let the group of strange bikes cross the road seemed amazed.

An evening ride around Lake Burley Griffin turned out to be an "epic" with riders running out of steam, tracking down who had whose keys to their cars, getting riders unfamiliar with Canberra to Dickson for the evening dinner and similar. Thank goodness for mobile phones to try and sort out the various problems and logistics. I was worn out by the time I got back to the Youth Hostel and escaped to home before the meal at the Canberra Tradesman's Club. The meal allegedly was pretty average, but participants enjoyed seeing the bike museum displays and a good yarn or two.

Saturday's weather was looking decidedly dodgy, with very heavy rain forecast for sometime during the morning. Riders left the Youth Hostel around 8.00am bound for the "Bundadrome"

And were holed up in a café at Kingston en-route for an hour or so waiting for the storms to pass. After a bit of a hiccup waiting for a ranger to turn up with the key to the Velodrome, we finally got inside and riders started doing laps of this outside concrete monstrosity. Built in the 1970's the Narrabundah National Velodrome was found to have been incorrectly built very early on with very abrupt transitions from steep banking to straight sections of the 330m track. Some



of the trikers took one look and decided it was all too scary, preferring to take a casual ride around the lake with Atholl. The 10 or so riders that were left gradually started getting used to the steep banking and some faster lap times were coming out. Chris Curtis brought out his “Plastic Moccasin” faired bike and impressed with some hot laps. Chris’s bike has a black corflute fairing, which almost scraped the banking as it rumbled around the track. It was decided that the banking was too steep and the riders too inexperienced to have more than one rider out racing on the track at once, so after the puddles had a chance to dry out, a flying 1,000 metre time trial was held. The lowracers of Ian and Peter proved to be the fastest with Chris’s streamliner coming close behind. Chris reckons the full fairing makes up for his lack of fitness, enabling him to put in some reasonable lap times with not too much effort. I guess this doesn’t allow for the extra effort Chris has to expend actually getting in an out of the Moccasin which includes removing and re-attaching the steering system – not all that practical, yet. The hire rate for the



velodrome is reasonable, but the steep banking doesn’t make it a particularly good venue for recumbent racing. Anyway, after a couple of hours of laps and under threat of another downpour, the OzHPV mob departed the “Bundadrome” and returned to Kingston for lunch at the bakery.

Saturday afternoon, we had arranged to meet up with the small wheel/folding bike people also in Canberra for a gathering at the Bike Museum annexe for a “come & try” and a viewing of the bulk of the bike museum collection. This went on for about two hours and when everyone had their fill of looking at old bikes and trying out new bikes and trikes, they started to drift off.

Saturday evening held in store a BBQ at Atholl and Mary’s house. The BBQ was sponsored by Michael Priest of FUSE RECUMBENTS and this was very much appreciated as it helped to make the spread of food even better. Food was



consumed, stories were told, and people had fun. Then there was the AGM. The usual lively discussion eventuated on issues such as how many OzHPV Challenges should be run and where. A new Committee was elected which included: Rudolf Werner – President, Atholl Reid – Secretary and David Henshaw – Treasurer. A rally event was decided to be held in Albury / Wodonga some time in March 2005. The 2005 Broadford OzHPV Challenge would be held on 2&3 April 2005. The “Canberra Mob” advised that they would probably organise an “event” in October / November 2005 and hadn’t decided whether it would be of a competitive or social nature or a mixture of both. The departing committee members Jeannie and Kevin were thanked, as were other key members of the association, such as Tim Smith – Newsletter, Andrew Stewart – Webmaster and Bernard Weir – newsletter photocopier and sender outerer.

On Sunday morning it was breakfast at a bakery, followed by a short ride to the start of the annual Tour De Femme bike race for ladies. Only two recumbents were in the field of several thousand, ably womaned by Bec Gibb and Helen Curtis. Apart

from Flying Furniture chief scientist Ian Humphries putting all his bets on Helen finishing with a good time, Bec went out hard on her carbon beauty “Svetlana” and stuck with the lead group for most of the way, sometimes having to brake as they slowed her up on some downhills. The bunch sprint up Cotter Road hill saw Bec drop off the back, but even so she finished in an excellent 26th place, 2 minutes behind the leader. Helen finished in 34th position. Both should be congratulated on great efforts. A roadie chick came up to Bec after the race and said, “You’d go much faster if you were on a road bike”. Oh well, they may never get it will they? The goal for next year is to get more ladies on recumbents participating and “to make the roadies hurt”.

We sat around after the race for a while, but a cold wind off the lake meant we were keen to get riding again, so the group headed off on Pete’s Magical Mystery Tour around Old & New Parliament Houses before getting split up again somewhere up a garden path near Parliament House, to finally re-group in Manuka at the bakery for lunch in the sun. After lunch riders said their goodbyes and thanks to the organisers and drifted off to nearby markets or their vehicles to head home.

All in all a great weekend was had for a minimum of organisational input or cost on the participants.

Pictures from the rally weekend can be viewed at this web site. <http://150.203.47.54/rr2004/index.html>

Statistics from the weekend:

- Riding participants 33
- Trikes 15
- Bikes (bent) 14
- Bikes (other) 1
- Bikes (tandem/bent) 1
- Bikes (Power assist) 1
- Bakery/café visits 7

Peter Heal – The OzHPV Canberra Mob
heal@cyberone.com.au



The story of Noddy

By Damian Harkin

Noddy is my second attempt to build a bike. The first attempt was ‘Boxy 1’, a pre-pre-prototype piece of junk I built - to see if I could. I rode Boxy 1 on a Vic HPV Sunday ride once, then retired it to the back of the shed. At least it proved I could make something and it was sort-of rideable. I was very pleased that it didn’t break in half.



The idea for the Boxy bike was probably too ambitious. It was supposed to be a collapsible bike. Two Boxy bikes could be joined up into a tandem. The frame was two empty plywood boxes with front and rear mechanical subframes. The mechanical parts were meant to pack into the boxes to form a big suitcase. In practice, the boxes were really huge and I still couldn’t get all the bits inside.

The Flevobike

Our story really starts with the Flevobike back-to-back tandem – the Kaspian Sea Monster of bicycles. This amazing bike hangs in my garage and comes out on special occasions. It is 30 kg of original ideas including foam-core with glued and





riveted aluminium sheet construction, independent drives with a reversing chain for the back wheel and a twisting chain for the front, cranks with reversed threads, lots of rivets and a beguiling art-nouveau shape. Flevo founder and engineering genius Johan Vrieling was firing on all cylinders when he concocted this thing.

The back-to-back layout has many advantages:

1. Independent drives let the riders change gear at will – no need to pedal in lock-step.
2. The frame is deep in the middle for strength.
3. The layout is probably more streamlined than two riders facing forwards.
4. Easy communication (heads are almost touching).
5. The stoker in ‘tail gunner’ position can advise on traffic movements behind.
6. The two halves can be quickly separated – there is no drive chain connecting them and the rear brake is on a quick-detach frame. I have taken this bike onto trains on several occasions.

However it’s hardly perfect:

1. Like some other Dutch HPV’s, it’s rather tall. This is fine when you’re moving, but the long reach to the ground gets awkward at the end of a long day. No matter how cooperative your stoker is, there are always times when he/she becomes ballast. Trying to manhandle or launch the bike at traffic lights or on a hill is a drag.
2. It’s not stiff enough. In a vertical plane, it’s very strong. But laterally and torsionally, the frame is quite willowy. After applying some steering lock, it takes a second or so for the frame to wind-up and actually start turning the corner. This ‘delayed steering’ effect is hard to get used to and not very nice.
3. It’s supposed to have a spring-shock unit right in the middle of the frame – as if it wasn’t already flexible enough. Our one has a rigid strut – so no suspension.

4. Although it has all the machinery (chains and gears) of two separate bikes, it cannot be converted into two separate bikes.
5. Aerodynamics could be improved by fairing-in the space between the seats.
6. Luggage capacity could be built-in between the seats also.
7. The bike needs a wider range of gearing.
8. The steering has a pronounced ‘tiller effect’ which I have never liked, even on my beloved Hurricane.

Rather than ‘develop’ the Flevo tandem, I’ve decided to leave it as-is. It really should be in a museum, and I don’t wish to alter it. Instead, I decided to design something new.

Enter Noddy

The new bike ‘Noddy’ is first and foremost a half-tandem. I call it a 2/2. Two Noddy’s can be joined up back-to-back to make a tandem. I will refer to these as the skipper bike and the stoker bike. It may take 20 minutes or so to reverse the drive on the stoker bike so this conversion won’t be particularly quick. (anyway a vastly more practical solution is Michael Rogan’s trike coupling which allows trikes to instantly connect into ‘trains’ and separate again at will.)

- The machine is a low-racer. I wanted to be able to put my feet on the ground (and my hands!) and I didn’t own a real low-racer, so this was my chance to get one.
- Two-wheel drive on the tandem translates into front-wheel drive as a solo. The chain twists when you steer. This twisting chain system has been proven on the Flevobike tandem and on many other designs (Zox, Bike Chameleon etc).
- It should have suspension. That’s full suspension in tandem mode, front suspension only as a solo.
- The bottom bracket is mounted on a sliding clamp just like the Flevobike. By sliding the clamp right off and reversing it, the chainring moves across to the left, and a solo bike becomes a stoker bike.
- The front forks are then turned through 180 degrees to drive backwards on the stoker bike.
- Brake levers are swapped around to give both brakes to the skipper (the bike has to have long cables!)
- The seat is a pannier is a fairing. It’s a bulky plywood box that forms a massively stiff structure joining the two bikes into one tandem.
- The steering of the stoker bike can be locked in the straight-ahead direction.

Front suspension

One of my goals was to have suspension, not so much for comfort as for safety and reduced stress on the frame. I've dropped bikes by hitting bumps with the front wheel while cranked over, and I think some suspension might have prevented the falls. Also it's an interesting technical challenge to rig front drive and front suspension together.

If we just fitted telescopic forks, the chain pull would compress the suspension at every pedal stroke. Clearly the tension in the chain has to be 'uncoupled' from suspension movements. One way to do this would be to have the idler pulleys rise and fall with the front wheel. A classic implementation of this idea is the ACE PUMA.



That bike has two structures running forward from the front of the seat – one is the fixed boom carrying the Bottom Bracket ('BB'), and below that is a suspended swingarm, carrying the headstem, fork and the idler wheels. As the suspension works, the idlers move up and down with the wheel. It probably works well, but I think it looks ugly.



Erik Wannee has built a lovely tandem with a similar arrangement. His suspension arm and fixed boom run side by side (with some swoopy bends to make room for each other). In looking at these designs, I felt that it was a pity to have two structures running forward from the seat. A typical rigid-framed recumbent has just one boom carrying the steering head and BB. The two structures (boom and swingarm) both have to be stiff and have to clear each other, which makes the frame very tall or rather wide.

I decided to try another ploy – why not mount the whole chain run, BB, headstem and forks on a rigid subframe, then support it all on upper and lower links so that it approximately pivots around the BB? The rider's feet won't notice that the structure is moving because the BB itself hardly moves. Thus a single structure runs out to the BB, also supporting the headstem and fork. Furthermore, this structure can be very low and close to the wheel – there is no need to provide clearance for the wheel travel as the whole subframe moves up and down with the wheel. The chain run is all contained on this subframe, so chain tension can have no effect on suspension movement.

What can be the disadvantages? The extra unsprung weight isn't much of a problem on a bicycle where the rider weighs 5

to 10 times the whole vehicle weight. Perhaps the BB centre isn't the ideal pivot point for a front suspension – it won't have any anti-dive effect (quite the opposite). But the Flevo Bike has exactly this geometry, with its front swingarm pivoting near the BB, and Flevo Bike owners love their machines, just ask Leo Broska!

I worried about putting suspension pivots into the middle of the frame. I didn't want any unnecessary slop or flex. Typical suspension linkages on bikes use small proprietary bushings or needle roller bearings. They have to be quite narrow to clear the rider's legs. I decided to use standard bicycle steering head bearings for the lower link – the axles are 1" tubes and they run in normal cups pressed into 30mm id tubes just like a steering head lying on its side. This arrangement is quite wide, but it's down at seat level where width doesn't matter.

The lower link transfers all the torsional and lateral stiffness to the front subframe, so the upper link can be a simpler rod. It needs to be narrow here because it is between the rider's legs.

The actual suspension unit is a pair of 'multicushion' elastomeric blocks. They are stacked on top of each other and bolted between the frame downtube and the subframe. By repositioning these units up and down in this space, the action of the unit changes from mostly compression to mostly shear, and the effective stiffness of the suspension can be adjusted.

Remote steerer.

The remote steerer should remove the annoying tiller effect. You turn the handlebars rather than push them from side to side. I wanted a bit of reassuring left to the steering instead of the trigger-happy nervousness of the Hurricane.

The upper and lower suspension links radiate from the BB axis. This creates the effect of a virtual centrepivot. The subframe approximately rotates about this point when you hit a bump. To avoid bump-steer effects, the steering drag link also has to point towards the BB.



Inseam issues

Because the suspension has to fit between my crotch and the front wheel, I lose about 120mm of inseam compared to a normal 20" wheel low-racer. To try to claw back this distance, I adopted a 305mm (small 16") wheel. I'm also looking to replace my cranks with short 150mm cranks. Currently, I can reach the pedals OK, but shorter cranks will make it a little more practical.

I assembled the bike with the front sub-frame temporarily rigidly connected, using the simple handlebar cannibalised from Boxy 1. The temporary seat is a piece of chipboard, supported on a slotted angle and bit of piano hinge. It's very easy to adjust the seat angle. I rode it around my court and the local park until I pushed too hard and bent one of the 8mm bolts holding the idler pulleys. This exercise proved I could reach the pedals ok.

Gearing

My baby front wheel will need to be fed with lots of chain to get up any decent speed. The cluster is an 11/34. Combined with a 65-tooth chainring that will give me a maximum of about 80 gear inches which is still pretty slow. I guess this design really needs a Schlumpf Speed Drive to work properly. I'll have to save up!

Stoker bike - Reversed Drive

When the bike is converted to a stoker bike, the bottom bracket is reversed so the chain ring moves to the 'left' side of the bike. Originally, I planned to reverse the drive train for the stoker. The Flevo tandem has a reversing idler pulley that puts the chainring OUTSIDE the loop of the chain. So the stoker (facing backwards) pedals normally while the back wheel of the bike drives forwards. To stop these pedals from unscrewing themselves, the rear crank arms on the Flevobike tandem are threaded in the opposite direction to normal.

I was intending to achieve the same reversing effect by offsetting the idler pulleys side by side and reeving the chain in a figure 8 arrangement. Ben Goodall's Nitro lowracer has offset idler pulleys like this. But my brother-in-law Bobby scoffed at this



idea – he said why not just tell the stoker to pedal backwards? So that's what we're doing. The stoker simply has to pedal backwards. Ross Harrop's retro-direct bike proves that this can work.

Getting the stoker to pedal backwards has many advantages.

- The chain run is exactly the same left and right. When reversing the drive, there is no need to break the chain to make it into a figure 8 or to lengthen it.

- The pedals don't have to be reverse-threaded or lock-tited into place to stop them unscrewing – from their point of view nothing much changes. In other words, the chainrings are always on the right hand side of the bike, driving forwards as normal.

- Likewise the BB bearings should stay screwed in. Steve Nurse has proved that BB's can unscrew themselves if they are driven in the wrong direction.

- If I ever do get a Speed Drive, these are only meant to drive in one direction. So this is another powerful argument for the stoker to pedal backwards.

Of course the stoker has to clip into these pedals from the opposite side to normal. Crank Brothers 'eggbeater' pedals are delightfully simple and symmetrical and you can clip into them from front or back.

The box

I've made the seat angle 20 degrees. The seat box will be 400mm wide from 4mm plywood. It will have a screwed-on top, with a waterproof hatch for storing things inside it. I tilted the 'nose' of the bike down at 20 degrees also to match the seat angle and try to give the bike some 'design flair'. Well, it's never going to be as pretty as John Kuljis' Xevon!

The other wheel

The solo bike needs a back wheel. I decided to use a wheelchair hub and just have a sleeve in the frame to support the axle. That makes it very quick to detach the wheel. Obviously, this sleeve is in an offset part of the frame, so the wheel itself is on the centreline.

I added a second 'extra' sleeve into the main frame tube some distance in front of the back wheel. When two such bikes are placed back to back, the two 'back wheel' sleeves line up with the two 'extra' sleeves. The two axles can then be used as bolts to join the frames together. The seat boxes are also bolted together for stiffness.

This achieves another important design goal – I didn't want the tandem to rely on too many tandem-only parts that might get lost when the bikes are used separately. Two solo Noddy bikes already include everything needed to connect up into a tandem.

The more I think about this, the more sense it makes. I'll make an outrageous statement: All low-racers and most other recumbent bikes should use front-wheel drive, and a single sided back end, with a wheelchair hub. This makes 'tandemising' easy, and I can't see any disadvantage.

New parts

My friends Robert Waryszak and Steve Nurse have built many bikes and they often use recycled materials. Old bikes from trash and treasure markets and from hard rubbish collections are a fantastic resource, and it's very good to recycle them. But I decided to build Noddy from mostly new materials, mainly so the exercise would be repeatable. Also I wanted it to work properly. Old worn out clusters cause skipping chains and aren't much fun.

The main tubing is 38 x 38 x 1.2mm bright steel, obtained from Robot Trading in Notting Hill. It ain't chrome moly, but I'm hoping its strong enough. The headstock tubes are 35 OD x 2.5mm seamless tube made by Smorgons, but hard to obtain. I got a piece from the ARB Bullbar people in Bayswater. The ID is exactly 30mm and headstem bearings press in perfectly.

I got a pair of bmx forks with V brake bosses from my local bike shop. I sawed the bottoms off these to fit my little wheel with its big cluster. My new dropouts are carved from 6mm mild steel plate and are pretty heavy. I made a fork jig to locate the axle position before welding the dropouts on. I have seen bent-plate dropouts like this on a Toxy lowracer. I bought some cheap V brakes from K-mart.

Both my wheels were made up by Michael Rogan at MR Components. The rear is a conventional 20" wheel with wheelchair hub as he uses on his trikes. Originally I wanted both wheels to be 20", but I decided my legs wouldn't be long enough to reach around the front suspension and the front wheel. So I've used the little 16" wheel (305) with a Maxxis Hookworm 110 psi tyre. This little wheel will REQUIRE suspension, so I don't know if the suspension is really a bonus or just a necessity. Steve Nurse's "Zeica" bike takes the exact opposite approach – having no front suspension, it uses a nice big wheel. I think his answer is more elegant (certainly lighter and cheaper), but I wanted a lowracer...

Geometry

This turns out to be pretty simple. I decided I wanted 50mm of trail. Also, the forks should have zero offset from the axle to the steering axis. That's so the wheel sits in the same location when it is steered 180 degrees to drive backwards. So the rake of the fork has to be $\arctan(50/???) = ???$ degrees.

The main frame tube should be horizontal (it has to be to connect two bikes together). And the rear wheel sleeve is in the middle of the tube, so that means its centreline is 240mm above the ground. That gives about 220mm ground clearance.

The seat angle is 20 degrees and the 'nose' of the bike also (at least in its neutral position). I made the front subframe a right angle, so the downtubes are at 70 degrees.

First Ride – 17 October 2004

After working all day Saturday to build the remote steering head, linkage and steering lever arms, I got up on Sunday morning and bolted it all together, fitted the chain and front brakes. I decided to leave off the front idler wheel – that saved 450mm of chain and the weight and friction of the second idler. Its an experiment...

The bike has some issues, but nothing too bad. The steering lock is minimal. My rod-ends have to cope with both steering and suspension movements. I oriented them to allow big suspension movements, which limits my steering to about 5 degrees each way! Even so, the tyre still rubs on the chain in corners. Nevertheless, I can ride it and I should be able to improve this a bit.

My main worry was wondering how the suspension would work. Riding the bike, I couldn't feel what was happening, but I looked at the front sub-frame and it was banging up and down happily over the bumps. My feet can't feel any movement, and the action is supple and smooth. I'm rapt!

The 40mm multi-cushions are too small. Stacked on top of each other, they form a column of rubber that is too slender. When I brake, the suspension unit can buckle, causing the front wheel to 'tuck under'. Amazingly, when this happens, the bike doesn't crash, and it recovers as soon as I let the brake off. The steering doesn't seem to have any kick from the suspension, even under these extreme excursions. I'll replace the rubbers with bigger ones, and maybe include stops to limit the suspension motion. The work continues...



Minutes of OzHPV Inc. Annual General Meeting – November 2004

Held: 8:15pm Saturday, 13th November 2004.
28 members present.
Peter Heal agreed to act as chairperson for the meeting.

Apologies:

Rudolf Werner (Treasurer)
Timothy Smith

Reports:

President

President Kevin Mason, gave a short report thanking members who had contributed to OzHPV over the past 12 months. He had been very busy with other clubs he is involved in. The importance of advocacy in using and promoting other means of human transport, providing a safe means of travel to and from work were mentioned. Being the second year of his term it is someone else's turn.

Secretary

Jeannie Davidson gave thanks to the input by Kevin Mason, Rudi Werner, David Henshaw and Tim Smith and she said she had very much enjoyed working with them.

She also thanked Bernard Weir for his help copying the mail out versions of Huff.

Treasurer

Treasurer submitted a statement of accounts which detailed the current balance of bank account was \$7,126.67 at 30/6/04, compared to \$6,232.73 at same time last year.

Membership numbers had grown to over 116 which meant the Association's public liability insurance premium would rise to a higher tier in the future.

Moved accounts be accepted: Peter Heal, Seconded: William Reid. Passed unanimously.

Elections of Committee

All positions were declared vacant and Peter Heal asked for nominations.

President

- **Peter Heal** nominated by David McCook and seconded Jeannie Davidson. Peter declined to accept nomination.
- **Rudolf Werner** had advised that he would stand as President. Nominated Peter Heal, seconded Jeannie Davidson.
- **Rudolf Werner** elected as President

Secretary

- **Peter Heal** nominated by David McCook and seconded Helen Curtis. Peter declined to accept nomination.
 - **Atholl Reid** offered to fill the position of Secretary. Nominated by David McCook, seconded by Helen Curtis.
 - **Atholl Reid** elected as secretary.
- Treasurer/Membership Secretary
- **David Henshaw** nominated as Treasurer/Membership Secretary by William Reid, seconded Stephen Nurse.
 - **David Henshaw** elected as Treasurer/Membership Secretary.

Public Officer

- **Chris Curtis** agreed to act as the association's Public Officer once again and advised that the required returns and reports had been lodged th the ACT Registrar General.

State Contacts

The following members nominated as State/Region contact persons.

- ACT – Peter Heal
- NSW – Kevin Mason
- SA – Robert Braunsthal
- VIC – Robert Waryszack
- TAS – Timothy Smith
- WA – Vacant
- QLD – Vacant
- NT – Vacant
- Albury – Lloyd Charter

Newsletter Editor

- **Timothy Smith** had offered to continue as "Huff" editor if no one else wanted to do the job.
- Elected unopposed.

Web Page Editor

- **Andrew Stewart** had taken over this role for Tim during the year and was happy to continue.
- Elected unopposed.

General Business

- Jeannie read out a letter from Tim Smith regarding the possible videoing of any sessions by bike builders that were run at this event following the AGM last year as he thought they would be of interest to people who were unable to attend. However none were run this year. Also mentioned were a membership drive and any present members can renew after meeting. (Jeannie provided forms and collected fees from those who wished to renew early).

- There was lengthy discussion on whether Victoria could use the title "ÖzHPV Challenge" for the 2 & 3 April 2005 event. This was to maintain continuity with potential sponsors. The ACT members were not concerned and said they would probably organise a major event in October or November 2005 and were not sure that it would be a "rally" or in the "Challenge" format. Ian Humphries felt that there was scope to organise "Challenge" type events in more than one state each year and said he would be interested in sponsoring different events. Helen Curtis proposed that Victoria be permitted to call their event in April "The OzHPV Challenge" in 2005. Stephen Nurse advised that the plan for the event would be to have 7 or 8 competitive events on the Saturday and make Sunday the social day of the weekend to enable interstateers to travel home. He suggested that the location, month, year and person be put on the Challenge Trophy which may mean it would be held a little less long. Ian Humphries proposed that Canberra have a "Challenge" event in 2006, seconded Atholl Reid. Put to a vote: 9 for, 2 against, 1 abstained. Motion carried.

- **Speed Record Committee.** Ian Humphries felt OzHPV needed to be promoting more speed record type events based on existing international protocols (wind/slope/timing) and acting as record keeper of human power vehicle records in Australia. Ian nominated Andrew Stewart as the official OzHPV "Speedometer" (record collector).

- **International Representation.** Ian Humphries reported on the recent developments with the release of the "Human Power" magazine CD. Some legal issues between the Americans and Europeans on the copyright ownership of the information. See Huff(Oct/Nov 2004)

- **Rally.** Helen Curtis moved a vote of thanks to Peter Heal and the Canberra Mob for organizing another successful Rally.

- Thanks were also made to Atholl and his wife Mary for the use of their house for the BBQ and AGM.



Meeting ended approximately: 9:45pm.

Parking Brakes on trikes

Qn: We are putting our tandem away for the winter. Should I leave the disk brakes on (that is put velcro around them as 'parking brakes') or leave them off. We will store the bike upright.

Ans: I'd suggest leaving the locks off the brakes, so that the seals are in their relaxed position, and not squashed hard into the sides of the cylinders. I can't say I've had any real problem from leaving mine on my demo trikes for weeks at a time, but occasionally the levers don't seem to move as freely as they might.

Puncture Proofing

I found that the stiffer tyres and tyres with puncture protection belts always gave worse rolling resistance than the lighter, more supple tyres. And that thornproof tyres doubled the rolling resistance of good tyres.

So I was impressed to find a puncture proofing system which *LOWERED* the rolling resistance of tyres at Interbike.

How? It just removed the inner tube, and sealed the tyre against the rim with a sealing strip, and some tyre sealant.

I tested it and found that I got a 20% improvement in rolling resistance with the Comp Pool tyres. I also found that it sealed a hole from a 2" nail. So I guess it should cope O.K. with thorns.

Next thing will be to test it over the longer term, so my son Paul, has just fitted a new set of Marathon Slicks to his trike with this method.

www.notubes.com

Ian Sims, Greenspeed - ian@greenspeed.com.au

Electric Assist Trailer

On the left a pic of an electric assist trailer based on the Oatley electronics (<http://www.oatleyelectronics.com>) \$260 Quad bike. I found this to be an effective means of assist with only minor modifications to convert it to a trailer. This trailer pushes the Adventure SWIFT uphill at around 15-18kmph despite being loaded with rider and child.

The attachment to trike was made by welding a yoke onto the existing front fork of the scooter (the arrangement being similar to most single wheeled trailers)

Michael Rogan mrogan@peninsula.hotkey.net.au

OzHPV Spectacular in Broadford, April 2/3 2005

OzHPV has held races at the state motorcycling Centre in Broadford, Victoria for the last 3 years. The track is set on a scenic Hillside, 70k north of Melbourne, camping is available at the track, and it's free for spectators.

The OzHPV Spectacular in Broadford will be a chance for cycles banned from most cycling races (recumbents, trikes and streamlined vehicles) since the 1930's to compete against each other in a wide variety of events, and to socialize and compare vehicles. It's great, fun, family friendly cycling.

Racing Program from 10am on Saturday April 2 to include: Hill Climb, Downhill roll, Time trial, Off road, Road race, Shopping race, Twin Slalom, Interstate Relay Race. Points are scored for the place each rider receives and there are prizes for each race and for the overall winners.

Social Night at the track, April 2 from 8pm: This year's event included a free trivia quiz & Karaoke event. What will it be next year? Group ride and visit to the Bylands tramway museum: This will be the main activity for Sunday April 3, it is possible we will also conduct some scientific tests on the speed of various HPV's

Competitor fees Senior: \$30
 Competitor fees Junior = U15: \$20
 Camping fees per night for all over 16: \$5

To streamline registration we strongly encourage all competitors to pre-register (but not necessarily pay) before the event. For more information or to be sent an entry form please contact Steve Nurse, ph. (03)9481 8290 or email cesnur@austarmetro.com.au

Meeting to organise April 2005 Broadford OzHPV Challenge

There will be a meeting to organise the challenge event at Steve & Christine Nurse's house, 10 Abbott Grove, Clifton Hill, (Melway Map 2C Ref A2) At 8pm on Thursday 9/12/04

- * Sponsorship Report
- * Order of racing & events
- * Possible scientific tests on recumbents on Sunday of the event

If anyone wants to put their 2 cents worth in but can't attend please let me know by email or phone 9481 8290

Steve Nurse - cesnur@austarmetro.com.au

Melbourne Exhibition

The OzHPV display at the show went very well, with a total of 8 HPV's on display, including Damian Harkin's back to back tandem, Robert Waryszak's power assisted chopper, a Greenspeed ute, a Trisled fully enclosed trike and two of the "fastest bikes in Australia", John Kulgos's 'Xevon' and an M5 carbon low racer from Flying Furniture. Down one end of the display we had 3 front wheel drive bikes in a row, and virtually everyone who went past the display was interested, bemused or confused. Lots of people felt liberated by the display and started discussing their pet HPV project, either current or "just thinking about it", ie "Human Powered Snowmobile" or "Sidecar for bicycle that will act as a Golf-Buggy".

There were quite a few HPV'ers drifting through the crowd or manning the Greenspeed / Flying Furniture / MR components or Trisled stands and HPV's seemed to be very popular on the test track (gosh, you can ride a mountain bike any day you want)

Damian Harkin was clear winner of the "spirit of HPV" award for the weekend, riding his back to back tandem to and from Yarraville solo on each day of the show as well as organising the display on behalf of OzHPV. Thanks Damian!

Steve Nurse - cesnur@austarmetro.com.au

Cooper to Cunnamulla Bike (or Trike) Ride

I was in Cunnamulla over the weekend and picked up an interesting brochure The Cooper to Cunnamulla Bike Ride (April 24, 2005 to April 28, 2005) will cover 480 km in 4 days. The road is sealed all the way and flat - this is part of the Great Australian Outback.

It is being run in conjunction with the South West Queensland Masters Games 2005.

The ride will take you through some of the country that has seen a lot of the famous early explorers. You will pass through Thargomindah which had Australia's first municipally owned electric streetlights back in 1893. The same artesian bore driven water turbine supplied power to the town until 1951 when they switched to more modern methods. In the late 1800s the "Sydney Bulletin" recognized Thargomindah as being one of the three major centres for electricity in the world, surpassed only by London and Paris. Apologies to all Texans.

Anyone interested in the Masters Games can check it out at <http://www.cunnamullamasters.ctry.info/>

Further details on the ride can be obtained from thom@thomblake.com.au

I've got nothing to do with organizing this - I'm just passing on the info.

Dave in Roma on a GTO - dbryce@bigpond.net.au

Bicycle Camping and Touring

Why Go Touring By Bicycle?

Long-distance bicycle touring is by nature a Quixotic activity. In these days of light-speed communications, multimedia entertainment, fast, powerful, and prestigious automobiles, luxurious homes, exotic restaurants, and instant gratification, why would someone choose to pedal at slow speeds up high hills carrying a heavy load to boil rice in a small pot in the dark, insect-filled woods alone at night? Are bicycle tourers and bikepackers driven by a masochistic self-hatred that causes them to perform painful and anachronistic pilgrimages?

Actually, long-distance, loaded, bicycle camping is one of the most pleasurable activities I have ever experienced. I generally sleep poorly at night; but in the woods on a tour, I sleep like a baby, lulled to sleep by the music of insects. In the morning, I am awakened by the cheeping of birds. I eat a snack before getting up, and then I quickly pack my sleeping bag, air mattress, tent, and other gear and get on the road. I'm slower in the morning, having less speed but also a greater desire to stop at pleasant spots, dawdle, and enjoy. Travelling by bike allows me to stop anywhere, such as meadows, lakes (especially places to swim), woods, and scenic spots, not just at the tourist traps and overlooks. My large panniers may look very heavy to the passing motorist, but I barely notice their weight; actually, the bike feels better loaded than empty; it's a lot more stable. Somewhere near lunch, I find a small grocery and buy some bread, sandwich materials, and fruit. I find a town park or other shady spot to wait out the high mid-day sun and maybe nap. In the afternoon, my speeds are higher, and I spend less time at stops (but I still usually stop fairly often, sometimes a quick dash into a grocery for bananas, sometimes a stop to pick wild berries). My body, tanned, lean from cycling, hardened by climbing, feels fantastic. I relish the climbs. In the late afternoon, I start riding slower, and I start having thoughts about stopping. I finally find a place in the early evening, cook a simple meal, and rest and cool off. As it starts to get dark, I pitch my tent, crawl in, and fall asleep.

There are exciting times and difficult times as well. Visiting strange or famous places and accomplishing goals are always exciting to me. I meet and talk with interesting people along the way, sometimes other traveling cyclists. Beautiful views, strong tail winds from nearby storms, encountering wild animals (usually at my camping site), and traveling up and down hills also stir me up. On the other hand, I may run into a rainy or hot spell, have to repair my bike or tire, encounter a hostile motorist, or just find myself in a bad mood. The problems are infrequent and are easily dealt with; the pleasures remain in my mind for years.

Ron Bottrell - bottrell2001@msn.com

Continued from page 1 - How to ride a bike downhill

the bike should not be used at high speeds. In fact, it shouldn't be ridden at all until repaired.

However, a bicycle that has good brakes and wheels and is properly aligned can easily travel at 70 km/hr or even faster without any problem. I know because I have travelled that fast down many, many hills on all of my bikes.

There's even one safety advantage to travelling fast on a bike. As the speed of the bike gets faster, the gyroscopic stability of the wheels gets greater, thus making the bike harder to upset.

Some bikes may become less stable when they reach a certain speed. This indicates a design failure, and any bike that shows such a characteristic should be kept below that speed. None of my bikes has ever demonstrated this problem more than very slightly.

A myth that I learned as a child is that high speed will throw all the grease out of the hubs. This is not true.

However, there are real dangers involved in travelling at high speeds. One is that it takes much longer to brake to a stop, another is the danger from holes or gravel, another is the danger from motor vehicles, and the final problem is that of making tight curves, especially if the road is wet.

First, it's important to recognize that braking distances increase rapidly with speed (especially when the rims are wet!). The brakes on a bike are also not as good as those on a car, so it's important not to get too close behind cars when descending. Watch ahead and anticipate dangers. When I first started riding a bike as an adult, I used to go down one hill on the college campus at 56.3 km/hr in order to climb easily up the other side. One day, a student started across the crosswalk into my path, saw me zooming towards him like a rocket, froze, and then alternated between going left, right, and staying in the middle. Although I could have passed him safely whichever of the three he chose, because he wouldn't choose, I very nearly burned up my brakepads in stopping for that fool; however, I also recognized that I had been travelling through there too fast, and I quit accelerating down that hill from then on, even though the trip back up was a little harder.

Second, when travelling downhill at high speed, hitting a hole, loose sand and gravel, a slick section of road, or a patch of ice can be very dangerous. One should use caution except on the best roads, and even on the best road, use caution when going around bends. Back in my first years of cycling, I was going around a bend at maximum speed when I discovered loose gravel had been spread on the road. I already knew that turning would cause me to fall, so I braked as hard as I safely could while riding straight. Fortunately, I was on an inside bend and there was a parking area, so I was able to stop safely about 7.5 mtrs after leaving the roadway. I have never gone around a blind curve so foolishly again. Always be prepared to stop. On a day with rain or snow, keep speed down on the bends.

Third, one must recognize a greater danger from motor vehicles when moving faster. Although many people cite the slow speed of a bicycle as a reason why bikes shouldn't be on the roads, the truth is that riding a motorcycle, which moves with the traffic, is more dangerous. When descending at high speeds, keep your distance from motor vehicles. I pass the very slow ones and use my brakes to keep a safe distance behind the ones I can't pass. Also, since I am moving at the same speed as the traffic, I take the middle of the lane. My worst downhill moment with traffic was in 1990. A heavy rain was keeping the road and my brakes wet, and the vehicles were travelling bumper to bumper at my speed (about 45 km/hr). Each time a car passed, I would have to slow to allow enough braking room between it and me, which would cause the next car to force its way around me. I could not just brake to let the whole line pass, as I needed an entire lane, and there was no shoulder anyway. I was so glad when they had finally inched past me. They really shouldn't have been travelling so close together in the rain on such a steep downhill.

Finally, there is the problem of tight curves on a downhill, and here we have almost another whole new topic.

The modern roadway climbs straight up the mountain, ignoring local grades, and is difficult to climb and easy to descend. The older roadway follows the terrain up the mountain, steeper in some places, less steep in others, but always winding around. These roads are usually easier to climb, and they are certainly more fun to climb and descend; however, they also require more skill in the descent.

One problem in descending steeply is that the brakes may get too hot. After leaving Mt Hotham last year, I went down an incredibly steep hill, and I was afraid my brakes were going to melt. I was forced to stop several times to let my brakes cool off, as continuing could lead to tire or brake failure, as not only do the brakes and rims get hot, but the tires as well. The old glued-on tires used to come off sometimes because the glue would melt. Modern tires won't come off, but the brake pads can lose the ability to stop the bike.

Motor vehicles usually are less of a problem to the cyclist on such descents, partially because most motorists use other

roads, and partially because a four-wheeled vehicle can't get around the curves as fast as a two-wheeled vehicle. On my trip to Baw Baw in 1965, when descending to Noojee from Icy Creek, I actually let the vehicles in front get far ahead and then jumped in front of another line of cars, as I didn't want to ride my brakes all the way down. The following cars couldn't catch me until we had travelled another ten kilometres.

In going around a tight curve, your bike will want to lean to the inside, which is just what you want it to do. Apply just a little pressure on the brakes for two reasons: 1) the very mild braking will give you better traction, like gearing down a motor vehicle, and 2) you will be able to brake hard more quickly, should the need arise.

Because the bike is going downhill and thus weight is shifted forward, the front brake works much more efficiently than the rear. One partial solution is to modify your sitting position, pushing your butt back further on the seat. It's also good to improve the braking position of the hands, if you have drop bars, as the usual positions do not give adequate leverage. On a really steep downhill, I have the brake in a death grip, with my hands on the inside curve of the bar, where I would never hold them otherwise.

Because I am left-handed, I have also reversed my brakes, so my left (more powerful) hand controls the rear brake. I have been warned at bike shops that doing so increases the risk of an accident for anyone stealing my bike, but I have not been alarmed by this suggestion.

It's important, when unfamiliar with a steep downhill, to travel somewhat cautiously and to hold attempts at speed records for when one is thoroughly familiar with the descent. As downhill descents are a learning experience, only gradually increase your downhill speed as you become more competent.

I thoroughly enjoy descending steep hills. My only problem with them is the long climb that I so often find at the bottom.

Ron Bottrell - bottrell2001@msn.com

If this Newsletter cannot be delivered please return to:
OzHPV Inc
PO Box 189 HRMC NSW 2310

