HUFF
Head Up and Feet First

OzHPV can be found at www.ozhpv.org.au, or contacted by mail at OzHPV Inc, c/o 12 Deakin Street Bentleigh East VIC 3165

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From The Editors – George Durbridge and Stephen Nurse

Welcome to the first Huff for 2011 and our first as editors. Huff will be published 4 times in 2011 and it's your magazine and only as good as OzHPV members make it. So please contribute, virtually everyone with a human powered vehicle has a story to tell and we want to hear it. A guide for contributing is included in this issue and is also on the OzHPV website. Hope you enjoy this issue and the ones to come.

Editorial - Trying to take over the World by George Durbridge

I recently test-rode the first recumbent trike designed to sell for under $US 1,000. It is built in China, to a US design. The design is basically sound, though with a few fixable defects. The construction and components are good; on a level with hybrid bikes costing $700 or so. If they sort out the design, it should sell well. Several Taiwanese manufacturers are now providing recumbent bikes at similar prices.

We seem to be approaching the point at which production volumes are sufficient that recumbents cost little more than similarly specified diamond frame bikes, with the small expected increase having regard to the number and type of parts used. That makes it opportune to re-open the old question which has been debated in recumbent circles for 80 years or so. When will they admit that we have won? That after 125 years the diamond frame has had its day, and that ergonomics and aerodynamics dictate that we move on to the recumbent?

The cost of recumbents has always dominated this discussion. Each of us has described the comfort and other advantages of our 'bent to interested passers-by and then seen their interest fade when they hear the price. And disappear when we suggest they could build their own. Now that the cost premium is falling to a level which won't deter the people most in need of them, will mass-produced recumbents take over the world?

(One factor which recumbent advocates always raise is the obtuse reactionaries of the UCI, the Salazars and Mubaraks of the cycling world. Forget them. Don't even demonstrate against them. The mountain bike revolution by-passed them, the Moulton revolution by-passed them, and so will any other popular revolution in recreational and touring cycling.)

Don't get your hopes up. The Moulton revolution (and it was a revolution) came 45 years ago, and went. Giant's Revive came and went. It is perfectly possible that this spike in accessible and affordable recumbents will also pass. There are three main reasons why recumbents will not take over the world.

First, they all have limitations which exclude some users. Short wheelbase recumbent bikes are not for everyone. They are not easy to ride, though some are easier than others, and all can be learned (with the possible exception of the Python). Long wheelbase bikes are easy to ride, but relatively slow, and bulky to turn and pack. The compact long wheelbase bike is a compromise, tending to be as slow as a LWB bike, but not as relaxed. Anyone can ride a trike, but trikes with high seats are

tippy. Although Windcheetah-style trikes are fast and stable, most people are concerned by the low seating position and visibility issues. I think they are wrong to worry, but plainly they do.

Secondly, partly because not every recumbent suits every rider, there are too many fundamentally different machines to choose from. If you go to buy a diamond-frame bike, the local bike shop will offer you a selection of sizes, colours, tyres and other fittings, but the choice won't be too stressful. Between your build, your budget and your aspirations, you will end up choosing between a few fairly closely comparable machines, any of which will do reasonably well. It would be very different at a well-stocked recumbent bike shop. Would Sir (or Madam) like a pocket rocket, with two wheels or three, good for breaking the land speed record, packs small, is hard to see and fits neatly under a 4x4? Perhaps Sir would prefer a huge cruising LWB, with excellent visibility and a stately approach to seeing the world? Or perhaps a velomobile, the last word in progress and expense, heavy, hot, hard to get into, costs less than a car and takes less parking room? Flustered with choice, Sir buys the Golden Years trike, or leaves with nothing at all, except a headache.

Thirdly, one of Sir's problems is that none of the machines he has been offered really fits his notion of a bike. For most of us, a bike is what the Road Rules say – anything with wheels, propelled by a human pushing on pedals, regardless of the rest of the design. But for many people, the diamond frame is part of how they see a bike. That isn't surprising – the basic layout is a superb design, which has barely been refined in over a century, which still suits an enormous number of people very well, and which is literally iconic, in that an outline diagram of a bike is about the clearest of the icons you see every day.

So quo vadis the recumbent? Recumbents meet too many real needs to be pushed into a narrow and expensive corner of the market, as the Moulton was. But if the Moulton didn't take over the world, neither will recumbents. If the day comes when every bike shop has one sensible and practical CLWB recumbent on display, and a catalogue from which you can order other recumbents, none of them costing vastly more than the corresponding Giant or Apollo hybrid bike, we will have succeeded. If we manage it well, they will displace those dreadful Gomier trikes.

OzHPV Challenge and 6 hour Enduro 2011

The 2011 OzHPV Challenge will be held in Wodonga on the Victorian / New South Wales border on the weekend of April 8 and 9, 2011. Albury has proved to be an ideal central location and in past years the event has attracted participants from Melbourne, Canberra, Adelaide, Sydney, Horsham, Portland, Geelong and Albury / Wodonga itself. The information and entry form will be distributed to OzHPV members shortly and will also be available on the OzHPV website at www.ozhpv.org.au .

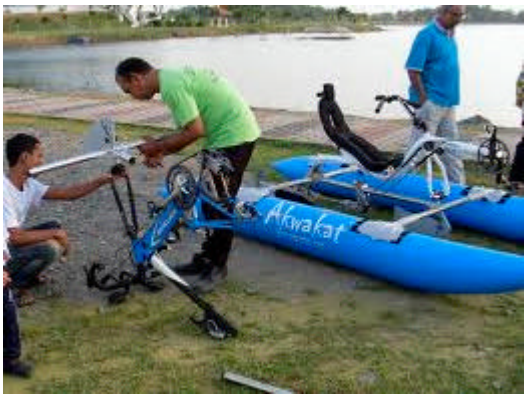
The Challenge welcomes riders of all ages to compete in a variety of events which aim to establish the most practical human powered vehicle (any bike or trike, faired or unfaired, upright or recumbent which passes basic safety rules) by totalling points in a variety of races which include a slalom race, short sprint (Go to Whoa), 1km time trial, Road race and 200m sprint.

The six hour enduro is open to teams of riders competing under United Pedal Prix rules (1 vehicle per team) and to teams of riders on individual vehicles in the Open category. It's a perfect time for Pedal Prix teams to shake down a new vehicle or educate some new riders.

Camping is available on-site. The Challenge always has a atmosphere of friendly camaraderie. The track for the races is the Wodonga Go-Kart track set in peaceful farmland within easy cycling distance of Wodonga. Struan took a good set of photos from a previous Challenge, go to http://imagery.fotopic.net/p27530087.html .

A Trio of Boats

Peter Heal posted me a link to this pedal powered boat from Wild Water Sports: looks nice and not too bad for a bit over $3000.
http://www.wildwatersports.com.au/index.php?page=shop.product_details&product_id=165&flypage=flypage.tpl&pop=0&option=com_virtuemart&Itemid=28



Once Peter had mentioned Human Powered Boats, more and more seemed to be appearing on the Internet. The Akwakat is a New Zealand made boat. A mountain bike is normally mounted on the pontoons to provide the propellor drive but there is video on the internet of a recumbent on the boat. See www.akwakat.co.nz or www.recumbentblog.com/2011/01/18/akwakat/ or for video of the recumbent on akwakat, see www.youtube.com/watch?v=SULEfzi0P_U. Australian price approx $1350.

This boat was featured on www.recumbentblog.com not for the innovation of its drive system but for its construction which has potential for use on velomobiles and recumbent tailboxes.

It uses a construction technique which was initially pioneered for use in model aeroplanes by Molt Taylor and Jerry Holcolmb. A cardboard type material, 0.6 to 1.2mm thick is formed into the shape of the object to be made using simple plywood formers on one side only. The cardboard is then coated with fibreglass (resin and glass fibre) on one side only. When this first side cures, the formers can be removed and the second side coated with fibreglass. For aeroplanes, the recommendations are that “each piece must be built and tested to at least 2 times the calculated design load”. This would be a bit over the top for a tailbox where failure is not the end of the world! From www.recumbentblog.com/2011/02/06/taylor-paper-glass/

ShiftEzy Electronic Gear Shift for the Rohloff Speedhub. By Edwin Sochen

(Last year in December before the OzHPV annual general meeting I met Edwin Sochen and saw his amazing bike. He had invented the gearchange system on it! Here is the story from Edwin…..)

I have been building my own bicycles for the last 15 years and my latest creation, my third recumbent, incorporates a drop handlebar (road bike handlebar). With all my recumbents I have always used the Rohloff SpeedHub. Among it's many attributes, the Rohloff hub allows gear changing whilst stationary, a most desirable feature on all recumbents.

This hub was designed primarily for mountain bikes and touring bikes. It's grip shift cable gear change thus only fits the standard 22.2mm handlebar. The standard roadbike handlebar is a bit larger in diameter and thus it is not possible to fit a Rohloff gripshift except on a spigot mounted at the end of the bar or on a spigot mounted on the stem. Although some examples exist in Europe and the USA, none were acceptable to me. I wanted a pushbutton gearshift system but extensive research and contact with the Rohloff factory yielded no results. It simply did not exist.

Necessity is the mother of invention and so it was with the development of the ShiftEzy. The design had to be above all, light and VERY simple. I opted for an "open loop" system using a small servo motor and planetary gearbox. Being open loop, the servo motor does not have encoder feedback to the controller.

The design uses an amplifier that pulses the servo motor precisely 51.4 degrees for every momentary push of a button. Two pushbuttons are used, one for up shift and one for down shift. However, rapid shifting is accomplished via quick successive pushes of a button. A 12v Li-Ion rechargeable battery powers the system allowing about 4,000 shifts per charge.

The most difficult task was to determine the amount of torque required for each gearshift. On a Rohloff hub this varies depending on the force one applies to the pedals. The more pressure on the pedals, the greater the torque required to shift a gear. Without resorting to a huge motor, a compromise was reached which allows for a moderate force on the pedals during gear change, but encourages gear changing between power strokes, a habit that is easily adopted and mastered. I currently have about 650km with the prototype on my recumbent.

Initially I never intended to market this system but unexpectedly, I received much interest on the bike paths that I ride on and curiously, from Rohloff themselves. Production is very different from building a "one off" but I decided to give it a go. The most difficult task is to secure a reliable and consistent supply of the various components, particularly for relatively small quantities. The servomotor/gearbox, the two mitre gears and the battery are sourced from overseas. All the other components are manufactured locally here in Melbourne.

An initial batch of 25 systems was made and I decided to initially market on eBay. I received an overwhelming response and sold this first batch within six weeks. Subsequently the demand slowed, possibly because of the bad weather in the northern hemisphere. To date I have sold 56 units but expect the demand to increase with the onset of summer in Europe and the USA. The ShiftEzy is currently being tested by the Rohloff factory.

I am currently testing a small charger module of my own design that will allow the charging of the battery from a dynamo.
This will be offered in February.
More info: www.touchezysolutions.com.au

A word about the bike:

All my bikes have incorporated carbon fibre mouldless construction. My latest creation is no exception. This method stems from my main hobby, building homebuilt aircraft. Mouldless construction was pioneered in the homebuilt aircraft industry and is extremely cost effective for "one off" projects.

Instead of making a male "plug" to create a female mould, one uses the plug as a permanent component of the product. No moulds are required. Simply put, a shape is made using a very light material, usually polyurethane foam, then this shape is wrapped with fibre glass and epoxy.

I chose to use balsa wood to shape the bicycle frame and carbon fibre and epoxy to cover the balsa wood shape. Carbon fibre is very light but exceptionally strong thus not requiring too many layers (lay-ups), especially in high load areas. For steering tube shell, bottom bracket shell, pivot point, dropouts and various other hard attachment points, I used high grade 6061T6 aircraft aluminum.

As for the geometry, after 10 years of designing and riding recumbent bikes, I have come to the conclusion that the moving bottom bracket or front wheel drive arrangement is **the** most logical and most efficient design for a recumbent. Whilst not a new idea, there are many examples where individuals have utilized this design but interestingly, only one example is commercially available in the world: the Cruzbike developed by the innovative John Tolhurst from Perth. It is his brilliant design of the Silvio that most inspired me. Contrary to popular belief, learning to ride a front wheel moving bottom bracket recumbent is extremely easy.

Australia Day Recumbent Ride: Oi!

By Pete Heal

The Canberra OzHPV Mob likes to get together for a social ride and a chat and the lakes and bike trails of Canberra make for some pleasant riding. Australia Day 2011 saw 13 riders on a variety of bikes and trikes circulating on a busy shared path around Lake Burley Griffin.

Canberra social rides usually happen once a month on the First Saturday. You could organise a social ride in your area - it's easy and if you are a OzHPV member you as organiser would be protected by the association public liability insurance.

If you need a hand to organise a ride please contact the Secretary or any Committee member who will be pleased to help you get started.

World Human Powered Vehicle Association News

By Steve Nurse with Pete Heal

- The 2011 World Human Powered Vehicle Championships will be held in Monza, Italy on June 10, 11 and 12 and hosted by the newly formed and wonderfully named Italian HPV group "Propulsione Umana", http://www.propulsioneumana.it/ As yet there is no website for the championship but some of the bare bones information is available from the Dutch HPV group website at http://en.ligfiets.net/news/3576/wk-ligfietsen-2011-op-circuit-monza-in-italie.html .

- Just as a bit of background, OzHPV is one of a group of National Human Powered Vehicle Organisations who have banded together to organise competitions, share information and keep a database of World Records. The WHPVA website is at http://www.whpva.org/ . The associated Human Powered Institute provides a free e-journal and links to a wealth of Human Powered Vehicle Information: http://www.hupi.org/ .

- In the last weeks I have emailed the WHPVA, floating the idea that member groups' newsletters be freely shared between groups. This would allow (say) OzHPV members to receive the newsletters from England, Holland, Spain, Germany etc. Not much response sofar but I intend to plug away at this.

Rebecca's first aid kit and at Tailem Bend on the Long Ride for Leukemia Research

Rebecca Edwards is a regular on Melbourne OzHPV group rides. Last time I met her she had been involved in a fairly complicated Human Powered Vehicle swap arrangement and was about to embark on a trip covering many of Victoria's country rail trails. She also undertook the "Long Ride for Leukaemia Research" ride from Perth to Melbourne. (http://lr4lr.com/)

"It's In The Bag"

When it comes to cycling, I know I'm not going to set any world records. I'm out there to enjoy the ride, whether it be a lap or two of the local parklands, or riding across the country. Which is why I use the old Scout motto of "be prepared'.

It amazes me just how many people go out for a ride, yet don't carry the basics to get themselves out of trouble. In these days of everyone having a mobile phone, many make the assumption that help is just around the corner. But what if you are out enjoying one of the many fine Rail Trails scattered through out Australia? What if that nice ride between a couple of country towns, turns out to be in a phone reception free area?

This is why I always have my panniers, containing a few basics to get me out of trouble. Now already before I start on the list, I can hear the cries of "extra weight!" Well the simple fact is, if I was really interested in saving a few kilograms, I would lay off the Friday night pizza. So here's the list, and a bit of a reason for carrying the various items.

First of all is the First Aid kit. Thankfully I have never had to use it on myself, but it has been very useful on many other people. Let's face it, if you come off a bike, you'll probably need something more than a band-aid. A basic kit is only a few dollars, but really comes in handy. In addition to a First Aid kit, I also carry a couple of instant ice packs. They may not be the greatest thing, but the coldness they put out for 5-10 minutes could be enough to stem bleeding or reduce swelling.

Next up is a basic tool kit. Nothing major, we're not looking to be able to rebuild the bike A-Team style. Just a couple of Allen keys, a screw driver, a shifting spanner, cable ties, electrical tape, the all important tyre levers, and of course spare tubes. Get to know your bike and you'll know what you need to cover the basics. It may not be enough for you to break the land speed record, but it could be enough to get you to the next town.

These days, everything is about safety, which is why I always carry a high visibility vest. When riding on road, I'm wearing it, not so much for bike paths. It's good to know that if your ride takes a bit longer than you thought, during those tricky twilight hours, you will be more visible.

A couple of spare batteries is always handy. If ever your lights will fail, it will be when you need to use them. Of course this all depends on the kind of lights you use, but even if it leaves you running on minimal lighting, it is better than none.

Weather is always an issue, especially here in Australia, which is why I carry a windbreaker, and some sunscreen. These are not so much of a necessity, more of a way to be able to enjoy the ride, when the weather turns against you.

The last thing on my list is some food. For me, a couple of muesli bars or fruit cups certainly come in handy. There is no need to worry about mess, and they last for months.

Now I know this all sounds like a lot to carry, but really, it only adds a little over a kilogram to my over all weight, and I still have a lot of room to carrying anything else in my panniers. Knowing I have this stuff always in my panniers makes it easy to head off for a ride at any time. When the spur of the moment hits, I know I can head out and have fun, safe in the knowledge I'm prepared when needed.

Happy riding.

CCHPVCC 6 Hour Races.

The Casey Cardinia HPV and Cycling Club will host Rounds 1 and 3 of the Bass Coast HPV Series on February 26 and May 14 at Casey fields near Cranbourne outside Melbourne. Vehicles must comply with Unified Pedal Prix rules and there are a range of classes for teams including schools and veteran's (over 35's) categories. Entries Close 17/2/11, for more details see www.cchpvcc.org.au .

Wonthaggi Pedal Prix, March 18 – 20

The Wonthaggi Human Powered Grand Prix is a three day event in Wonthaggi on Victoria's Bass Coast involving primary school and secondary school students racing human powered vehicles over a 1.4km street circuit, including a non-stop 24 hour race for senior students.

Primary students are involved in a series of pushcart races on the Friday. The pushcarts, which are built by the students, are based on the old "billycarts". Students must be able to dismantle and assemble their pushcart on the day.

The Human Powered 24 hour race involves the racing of 3 or 4 wheeled recumbent vehicles around a 1.4km street circuit in Wonthaggi (view Grand Prix track). The race involves teams of 8 people and is a test of endurance for the vehicles and the competitors.

As of February 4, places in the 24 hr event are booked out and new entrants will be placed on a waiting list. http://www.wonthaggisc.vic.edu.au/hpv/index.html

Guidelines for Submissions to HUFF

Steve Nurse with Rebecca Edwards and George Durbridge

What does HUFF mean anyway?
OzHPV's quarterly newsletter is called HUFF, which stands for "Head Up, Feet First". Sort of what we are all about anyway.

What kind of articles are you looking for? Personal adventures, trail reviews, something else?
We'd want something readers all around Australia can relate to and also have some bearing on human powered vehicles. So trail reviews would not be so good but personal adventures involving Human Powered Vehicles, stories about how you acquired bikes and what you think of them, technical stories about making and improving recumbents and other cycles and what worked for you are all great for HUFF.

"Human Powered Vehicles" covers all sorts of transport including pedalled and rowing boats, human powered aircraft and human powered vehicles that run on rails. Also of interest are applications of alternative human powered machines to everyday tasks, ie: juice making, water pumping and electricity generation.

Relevant book reviews and stories passed on from obscure corners of the internet are also gratefully received.

Can I access back issues of HUFF so I can see what has been published in the past?
Of course, see http://www.OzHPV.org.au/huff/ huff.html . HUFF has been published since OzHPV began in 1997 and magazines up to 2010 are available on the internet. Only current financial OzHPV members receive current issues of HUFF.

How many words? I have no issue with writing, but would need to know a word limit.
A good length for an article would be from 400 to 2000 words. With a few photos, 400 words will fill a page and 2,000 words will fill 3 – 4 pages. We also encourage letters and responses to articles and photos with captions.

What kind of style? Full on specs or light reading?
Really up to you but try to keep it consistent within the article. If you start writing about a cycle tour, don't suddenly break out with 3 paragraphs on why the load concentrations in the doodah caused the whatsit to bend. Just say that the whatsit bent and leave the technical stuff for another article or

“breakout piece” if you want. Purely technical articles can be quite dry so its worth trying to lighten them a bit with some humour.

With photos, what size and resolution? Should there be particular subject matters, to fit with a theme of the magazine?
Jpegs of about 2 - 400k size should be fine. If you're on tour, the preference would be for smiley face photos and ones with recumbents in them rather than straight out landscapes. Limit emails to 6MB or under please

What formats for text?

Practically any word processor will save your article as .rtf (Rich Text Format), or .txt (Plain Text). You could also use a Word 97 format file. Send it as an attachment to an email. Simply writing text in the body of an email is fine too.

I am very old school and don’t have email, write all my correspondence by fountain pen and take pictures with a Kodak Box Brownie. Can I still write for HUFF?

Well of course, mail all submissions to the address listed below. Please don’t forget a stamped self-addressed envelope so your photos and writing can be returned.

What are the deadlines for sending in articles for HUFF?
In 2011, the deadlines for submissions of letters and general articles are Feb 7, May 7, August 7, November 7.

HUFF editions will come out a week or 2 after those dates.

Ok, I am thoroughly convinced that writing for HUFF will do me the world of good, where do I send my articles to?

By email to: huff@ozhpv.org.au

Or by snail mail to:

OzHPV HUFF c/o
PO Box 1189
Fitzroy North
VIC 3068
AUSTRALIA

or

OzHPV HUFF c/o
10 Abbott Grove
Clifton Hill
Vic 3068