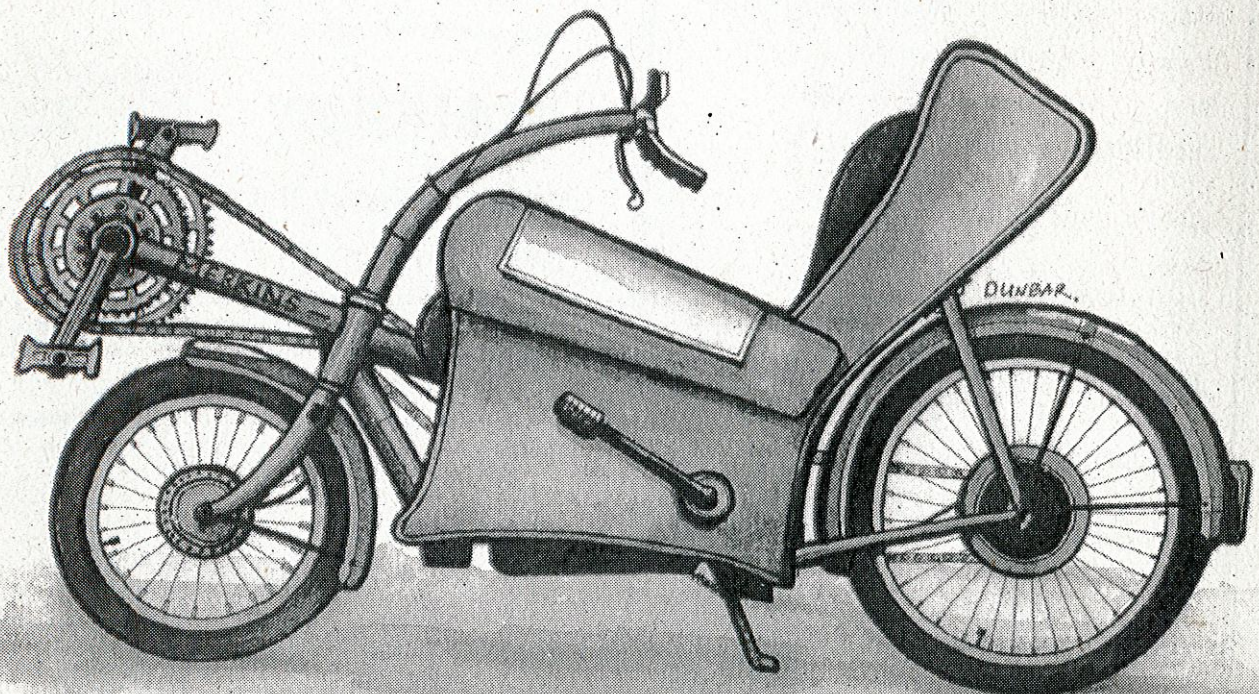


Edition 1

Winter '94

Laid·Back

The Journal of the Australian Human Powered Vehicle Association



Laid-Back

Laid-Back is the journal of the Australian Human Powered Vehicle Association.

Laid-Back editors are Murray Dowling & Sherri Prisk with many thanks to Warwick Dunbar ("It is indeed..."), Val "Mutti" Dowling and our contributors.

The opinions expressed herein are the Authors and do not necessarily represent the opinions of the AHPVA

Drop us a line!

All letters, articles and submissions are welcomed. Without contributors there wouldn't be a magazine!

How to do it:

Send your submissions to:

AHPVA
478 Whitehorse Road
Mitcham VIC 3132

(Make sure you include your name and address)

You can also submit your submission on disk. The preferred format is MS Word for Windows (on either 3½ or 5¼ disk) however as long as you specify what system you used we should be OK. If you need your disk sent back, please include a stamped self-addressed envelope.

(Please include a hard copy with your disk).

Short articles can be sent via internet email to:

sherri@tsmain.ts.rmit.edu.au

What to write about:

Contributions can cover anything from:-

- local rides & events
- tours and trips
- vehicles

We'd love to know what is happening in your area.

How long?

Length of your submission can vary from 500 to 1,400 words and may be accompanied by clear photographs, diagrams, line drawings etc.

Describe your vehicle to us for "My HPV". Please send clear photographs (preferably black & white).

For articles in the "What's On" calendar please include the event date, contact details and a brief description (about 100 words) of the event.

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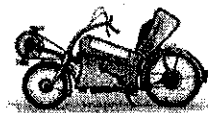
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Front cover illustration by Warwick Dunbar

'Bent History



1924 Merkins Heavy Tourer Recumbent

Brief History

The 1924 Merkins Heavy Tourer Recumbent is regarded by many as the finest achievement of Merkins Fahrradwerk GmbH of Bristol, East Germany. However, despite widespread public interest, only two were ever made.

The Merkins Heavy Tourer was inherently unsafe at speeds greater than 7mph and was as a result nicknamed "The Widow-Maker".

Specifications

- 6-gear, solid pig-iron planetary gear wheel ensemble
- Main chassis heat-treated iridium billets
- Radially spoked solid wheels
- 25 psi Dunlop Sluggard-XP treadless balloon tyres
- Seating by Jason in authentic reversible Cheshire leatherette, with antimacassar and combined recliner lever/emergency brake
- Weight: 14cwt
- Length: 8'9"
- Cost: 1.600DM

And Now ...

Welcome to *Laid-Back*, the quarterly journal of the Australian Human Powered Vehicle Association. This journal aims to answer your questions on HPVs - What is being built? How fast? Where can I try one? When is the next HPV event?

New HPV designs can be hard to visualise from descriptions. *Laid-Back* will provide you with photographs and specifications of HPVs - new and old, Australian and international. Use it as a source for design ideas; learn from other builders; or peruse some of the commercially available recumbents (there are dozens!).

Laid-Back will be the primary source of information for the Australian HPV community. Indeed, it is only by grouping together under the banner of the Australian Human Powered Vehicle Association that we become a community.

Like many members, we pursued our interest in HPVs in isolation. We wondered what other HPVs existed, what they looked like, and where to buy them. Now, members of the AHPVA will receive regular updates of HPV news and pictures.

This is a publication by members for members. It needs your input to survive - articles, ideas, letters, suggestions, illustrations or photographs.

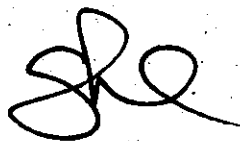
We encourage you to submit articles on aspects of your HPV and riding experiences. How did your trike steering evolve? Have you been touring by HPV? Tell us of the trials of building a fairing. Help us benefit from your experience by providing a detailed description and clear photographs.

This journal is dedicated to you - the HPV enthusiast.

Get *Laid-Back*!



Murray Dowling



Sherri Prisk

24 Hour HPV Record Continues To Grow

by Murray Dowling

The major milestone (if that's not too absurd a concept) of cycling 1,000km in under 24 hours seems near, if the recent progress of the world 24 hour HPV record continues. The 24 hour record has moved considerably since 1991 when Australian, Gerry Tatrai pushed the record above 800km at the 17th International Human Powered Speed Championships in Milwaukee, Wisconsin, USA. Amazingly, Gerry set this mark only a couple of weeks after racing in his first Race Across America (RAAM). Remarkably, the record was set on a one mile car raceway which had a rough surface. The vehicle he used for the record was a fully-faired Moulton.

More recently, South African Wimpie van der Merwe has broken the record several times on a fully-faired Mike Kramer front wheel drive (FWD) vehicle. His latest record was on 21 November 1993,

when he pushed the record up to 904km, despite enduring three thunderstorms. Wimpie continued on to establish a 1,000km record of 27:43:48. No stranger to success, Wimpie had already won the Argus Cycle Tour beating nearly 20,000 riders, including many professional racers.

That record managed to stand until 15 April 1994. On another rough 'autodrome' in Bakersfield, California, Pete Penseyres rode a Lightning F-40 to a new record of 968km. This was on a track that Matt Weaver (designer of Cutting Edge - the first successful low-rider) described as "simply too small and a bit rough". The temperature was also up around 38° Celsius. Hardly perfect conditions for a World Record.

It is interesting to note that, unlike most other 24-hour record attempts, Pete's vehicle was not purpose-built for the

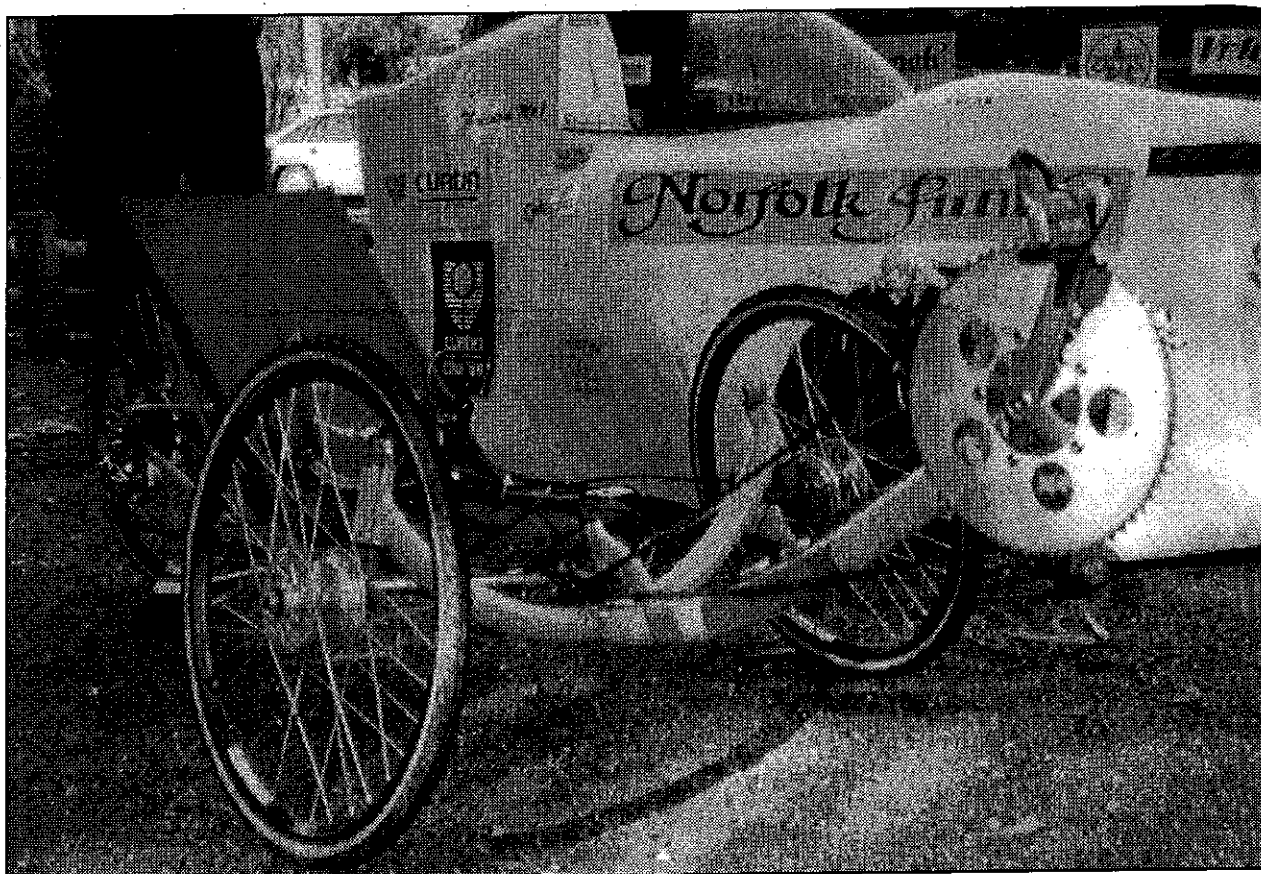
attempt. He used his trusty commuter bike. The standard soft spandex fairing had been replaced with a stretched Gore-tex™ fairing, providing a smoother bag with even lower drag. This is an impressive performance for a practical production vehicle.

The most recent advance in the record was in August this year at the 20th International Human Powered Speed Championships held in Eureka, California. Mhyee, riding in the Gold Rush America, cycled the record a further 9km towards the 1,000km point. The record is still to be ratified by the IHPVA, but reports indicate it is approximately 977km. Mhyee then appears to have coasted on to set the 1,000km record of 25 hours and 6 minutes.

It would seem that before too long, the 1,000km record will be set by a rider on their way to setting the 24-hour record and not after it.

Triking Across Australia

by Murray Dowling



Inside & Out!

Stuart Matthews and Paula Andrews are both serious athletes with a mission. They will be undertaking a journey from Fremantle to Canberra across the Nullarbor. I spoke to Stuart just prior to him leaving for Fremantle.

What are your backgrounds?

Both Paula and I attended the Australian Institute of Sport and I have represented Australia at the Olympic Games.

What sports did you compete in?

Paula is a rower and I competed in the decathlon and bobsleigh.

How did you get into riding HPVs?

After training many hours a day at the AIS, it is hard to go back to doing nothing. I first tried riding a recumbent about 18 months ago. I loved it, and could not believe that HPVs were not more widely used. I read up all I could on HPVs, and decided to try to design and build the best possible HPV.

Did you build the HPV yourself?

Wayne Kotzur, a Canberra bike builder (and HPV Challenge convener—Ed.), built the vehicles. Sachs have generously sponsored us by providing us with their latest components from Germany.

Can you describe the vehicles

Trikes, two front wheels, front wheel steering - similar to a Speedy. They have been designed with a very short wheelbase. To counteract the rougher ride that a short wheelbase design gives, all three wheels are fitted with suspension. Paula's frame weighs a little over 3 kg. Both are fitted with a Sachs 7-speed cluster mounted on a Sachs 3-speed hub. The single chainwheel is specially constructed from aluminium and has 66 teeth. The cluster goes down to an 11 tooth cog, giving a high top gear. The seat material is Gore-tex™ to allow our backs to breathe. The brakes are hydraulic. The trikes have full Kevlar fairings that we completed today.

What is the route of the ride?

From Fremantle following the coast of WA, crossing the Nullarbor, through Adelaide via the coast to Melbourne and finally on to Canberra. The total distance will be 5,260 km in 24 days from July 1 — an average of 220 km per day.

Mid-winter seems like an unusual time to pick.

The Norfolk Punch Tour de Nullarbor coincides with the running of the Tour de France, although these racers will average only 180 km per day.

How long have you been planning the ride?

We started planning it in January this year.

Will you be supported?

Yes, we have a support crew. At times there also will be media vehicles.

That sounds like an expensive operation.

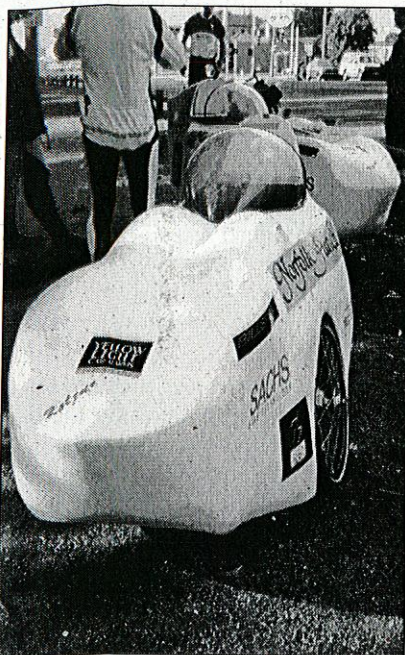
We have been fortunate in receiving sponsorship from a large number of sources. Our major sponsors include Norfolk Punch, Sachs, Curtin University and Curtin Alumni.

What are your aims for this ride?

We will be raising money for the Make-A-Wish Foundation. We are also trying to show people that recumbents are practical and fast.

And what about personal goals?

I am using this ride to gauge my food requirements for a forthcoming trip, during which I will cycle a pedal boat from Eden, NSW to New Zealand.



Front view - note the contoured fairings



Close up of the rear suspension behind the seat

Nullarbor Trike Specifications

by Wayne Kotzur

Stuart's design brief was to produce the lightest trikes that could be ridden and pushed hard by two seasoned athletes. As they were to be fully enclosed, provision was made to provide fixing points for telescopic tubes to support the lightweight kevlar fairings. To increase comfort and to reduce noise the trikes were fully suspended. Stuart also wanted to use a flexible steering system that would enable a better fairing shape and keep vulnerable steering mechanisms above the main frame.

A preliminary drawing (1/4 scale) was used to determine the basic layout and a more detailed (1/2 scale) plan and elevation formed the basis of the frame and fairings. By using a track of 850mm and reducing the seat height to 220mm we hoped to produce a very stable trike that would not require constant steering trimming. The "tiller" steering was similar to that of the Speedy (a UK trike) with a nylon-bushed arm mounted above the main cross frame. A sliding sleeve enables the hand controls to be adjusted for height and the use of ATB Trans X Bar Ends makes for easy tilt and width adjustment in the 'field'. By using a slightly undersized bush the steering can be left unattended on straight sections (riding with your hands behind your head is very comfortable!) but is light in action when needed.

The suspension system fitted is both sophisticated and simple. A rear slung arm on nylon oversized bearings, is controlled by specially configured VS Fox Shock

oil dampened air springs. A pressure rating of 60 to 200 psi provided good adjustability. With Paula's lighter weight of 60kg, the spring was set to 150 psi and Stuart's 105kg demanded 185 psi after getting some suspension travel at 175 psi under maximum pedalling load.

The front suspension consists of hardened kingpins sliding inside linear bearings acting on specially cast elastomer rubbers. While the rear suspension was set to give a maximum deflection of 50mm, the front was set for 12-15mm to reduce side deflection and to minimise possible steering interaction. It was considered to have less effect on comfort than the rear suspension and was to help provide vibration isolation for the front and end fairing. Additionally, a specially constructed Goretex™ seat cover over a light tubular chrome-moly seat frame gave additional comfort.

To avoid welding, the main frame consisted of two interpenetrating chrome-moly tubes which were rolled to increase their stiffness and to properly locate the cranks and kingpins. The main joint was made using nickel/bronze fillet brazing which has a good stress distribution shape and very high strength. All major brazons (the rear cross tube, the idler pulley were placed on 66 x 35mm discs to reduce local stresses and the shock absorber mounts were placed close to the neutral axis of the tube. Stuart's frame was constructed on 18 gauge (1.25mm) tubing while Paula's was lightened to 20 gauge (0.9mm) wall - this resulted in a trike frame weight of about 3kg for Paula's trike while Stuart's weighed in at about 4kg. This includes seat frames with the swing arms weighing an additional 600gm.

Test rides, necessarily brief and limited to a few days by the tight scheduling of their tour dates, confirmed that the trikes were strong, light and stable. They were outfitted with Sachs New Success ATB equipment and the drums were retrofitted with Sachs hydraulic brake levers and lines. This epic and fast ride will undoubtedly give the trikes a solid test and we all look forward to gaining from their experience.

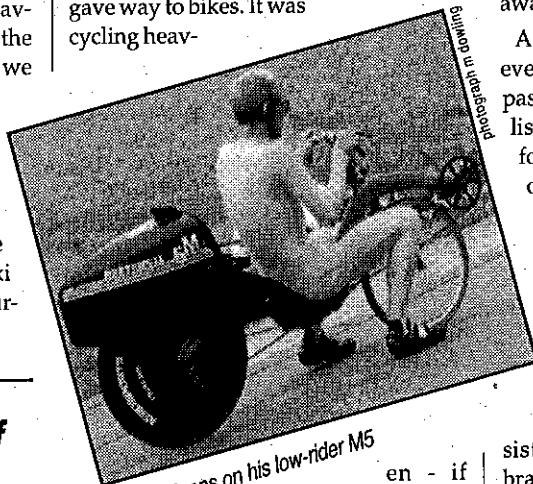
Delicious Denmark

(or how much of that pastry do you really want?)

by Sherri Prisk

An 80 minute flight from Heathrow, across the English Channel, over The Netherlands and Germany, brought us into Copenhagen Airport. Murray and I were greeted by a cool 16° degrees and rain after having had a week of sun and 24-26° in the UK. However, prepared for anything we donned our rain jackets and set off. Well we almost set off. Most European countries drive on the right hand side of the road and after some deliberation as to how to get out of the airport without getting killed, we were on our way. (We rode past a taxi rank outside the terminal - full of current model Mercedes Benz!).

these bike paths into the city we came across side streets. Magically all vehicles turning in and out of these side streets gave way! This was wonderful! The same happened on roundabouts - vehicles gave way to bikes. It was cycling heav-



Bram Moens on his low-rider M5

"Cycling heaven — if only we could understand the signs..."

Denmark is a wonderful country because it is so bike friendly. There are separate bitumen bike lanes along most roads including freeways, and throughout the city. These purpose built lanes — raised above the road and sealed with hot mix — are often better than the road surface and they have smooth on/off ramps across the gutter. While riding on one of

en - if only we could understand the signs. (Now I'm not sure if it is Danish law for all vehicles to "give way" so often. It may have been the sight of two loaded touring recumbents cruising around that caused all this wonderful courtesy).

We rode 10km into the centre of Copenhagen and immediately started to look for a bike shop because Murray's helmet had been broken during transit. Riding through the cobbled streets of the old city I got a puncture. Murray went off in search of a bike shop, whilst I fixed my bike. Lat-

er we came across two fully-faired Dutch vehicles with riders, attracting quite a lot of publicity for the weekend's event. As it was starting to get late and damp we decided to press on to Farum another 20km away.

After a couple of wrong turns we were eventually on our way when a car drove past beeping and waving - it was an English guy we had met in the city asking for directions to the European Championships. Arriving in Farum we saw John Kingsbury (of the Kingcycle clan) walking towards us. He directed us to the school, which was to be our home for the next four nights. We were camping inside classrooms with most of the English contingent, along with some Dutch and Germans. The English stable consisted of 9 Kingcycles (including my brand new machine), a Kingcycle Wasp and the Kingcycle K3, plus a Moulton and Murray's Lightning P38 (a couple of rings!).

Friday morning we registered and went shopping for food. The local Kvickly (supermarket) was open and so was the bakery. Time to try out some of these world famous Danish pastries! Spying a delicious looking chocolate-drenched pastry, British competitor Jonathon Woolrich decided to order some. "One piece please" turned out to be the entire tray (as big as a newspaper!). After indicating that he



Start of the Criterium Final

photograph: s prisk

wanted a smaller piece, they relented, and merely sold him half the tray! So guess what we all had for breakfast - fresh, warm, chocolate pastry - yummo! (Call it Danish carbo-loading!).

Because the search for sustenance took so long, we completely missed the welcome speech (and still can't work out where it was anyway). At midday the 200m sprints commenced. These were held along a closed section of road (however, a few cars still managed to drive onto the track). Riders were sent off along 1500m of run up, then through the 200m

**"the advertising worked
- over 400 spectators
watched the event"**

timed section with about 500m of stopping area before the traffic started again. By this late stage in the day, the wind had turned somewhat side/headwindish giving the faired vehicles a run for their money while the rest of us tried not to burn out before the timed section began. The timing equipment included a large Seiko clock showing time and average speed for each competitor as they came through. This added anticipation and excitement for the crowd for what is normally an exciting event. The timing equipment failed only once when an over enthusiastic German film crew on their motorbike decid-

ed to film one vehicle's run from the front, therefore setting off the timer...(they didn't win!) resulting in that rider having to do his sprint again. They then learnt to film from the side!

The sprints took up most of the afternoon. When we got back to the school it was time to search once more for suste-

drome for the 4000m pursuits. This turned out to be quite a procession with about 50 HPVs - fully-faired, partially faired and unfaired - all riding along in one long group led by a rainbow coloured Leitra. We certainly made an impression on the locals as we rode through town! Competitors in the pursuit were determined by



Trackside preparations at the Ordrup velodrome

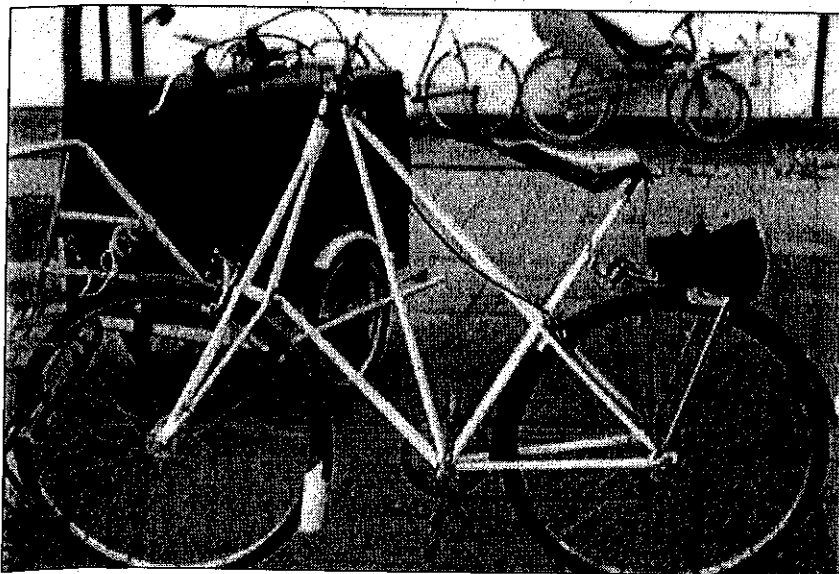
nance. There are not many great take-aways in downtown Farum but there was this great pizza shop that did a roaring trade. It even made the only pizza I like - the famous Australian ham, cheese and pineapple pizzas (I love Denmark!).

On Saturday morning (once again grey and cool) competitors rode the 20km to the Ordrup velo-

their 200m sprint times. Seeing as neither of us qualified it was a great opportunity to see some of the vehicles close up including Pedersens, Leitras and the Aero-projects.

After lunch was the Manøvreprøver - a taxing manoeuvrability event as riders tried to remember the course (especially if they missed the walk through). It was held in a shopping centre carpark and had been heavily advertised to gain spectator interest. The advertising had worked - over 400 spectators watched the event. The rain had stopped, leaving the track very slippery. It was full of twists and turns; sand, grass and gravel; stairs and logs which made it very exciting. Once again the timing equipment was present, allowing the crowd to gasp and cheer as each competitor took their turn at the course.

Straight after this event was the Kriterium - four laps around a 5km circuit with some really hairy 90° turns, wiggly bits and straights. The first three place-getters from each heat went into the final which was shaping up as an event not to be missed! With fully, partially and unfaired vehicles all competing in the same race (for their own class), spectators certainly got a great view of all vehicles and madly



A Danish Pederson

Delicious Denmark ...continued

cheered everyone as they went past! "Going Agricultural" was a term we picked up during the Criterium which applied when you missed a corner and went through the dirt and grass! Some vehicles that "went agricultural" managed to stay upright and get back into the race while others needed Sards soap to get rid of the grass stains!

There was a Saturday night "Get Together Party", held in the Café of the school. Tons of Chinese food was served along with plenty of beer and ice cream! (Makes a change from eating Italian pizzas in Denmark!). It certainly turned into a party!

Sunday dawned cloudy but stayed dry; perfect conditions for the 60km road race. After about a 15km ride to the start of the race we were all pretty warmed up (ie: stuffed). There was a massed start so you can imagine the scene - 52 HPVs all bunched together ready to go! The race was held on open roads and consisted of three laps of a 21km circuit through the countryside. At

**"On the last lap,
I forgot I was racing"**

all intersections members of the local cycling club marshalled traffic and directed competitors. On the last lap, I forgot I was racing as the lush countryside rolled on by, giant wind generators turning lazily on the horizon, farmers waving at you, clouds drifting on suddenly a fully faired recumbent flew past and I was brought back to reality!

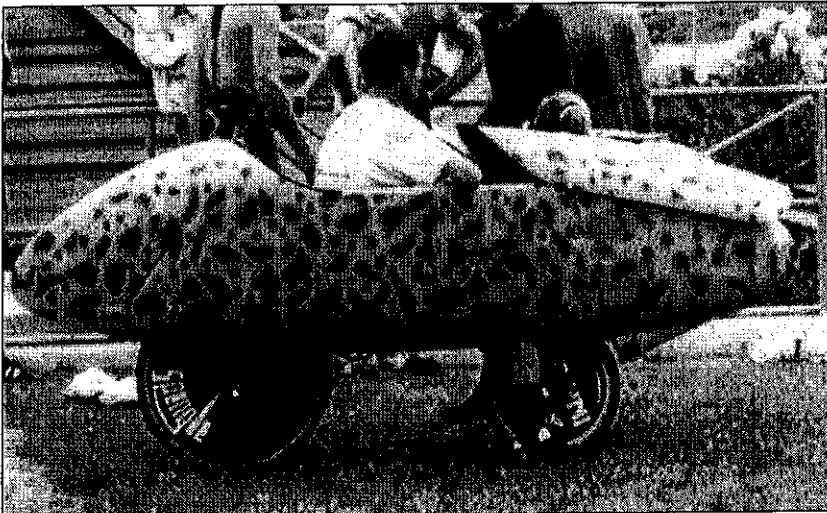
Well, it was all a bit exciting really - and tiring because we then had to ride back into Farum afterwards - albeit rather leisurely!

That night, after the standard pizza and Tuborg at the local pizza shop we watched the local SkyChannel news (in Danish). Some of our hosts were translating for us on the Tour de France, when all of a sudden an item appeared "Tour de Sofa"! This was the coverage of the European Championships. Our hosts were trying to translate whilst hysterically laughing - you can imagine what the reporter thought about us. We had no idea what was going on, only that we were on the news which was good enough in itself. Afterwards Chairman Kurt announced we were allowed to stay one more night in the School for no extra cost (he omitted to advise us of our departure time). So we continued talking and generally enjoying ourselves until the wee hours of the morn.

We were rudely awoken the next (same?) morning by someone running through the school saying "Get out! You must be out by seven o'clock!" This was at six minutes to seven! Nice and timely! As it turned out we were not locked in a Danish school for the summer; by seven thirty we were packed and ready to go.

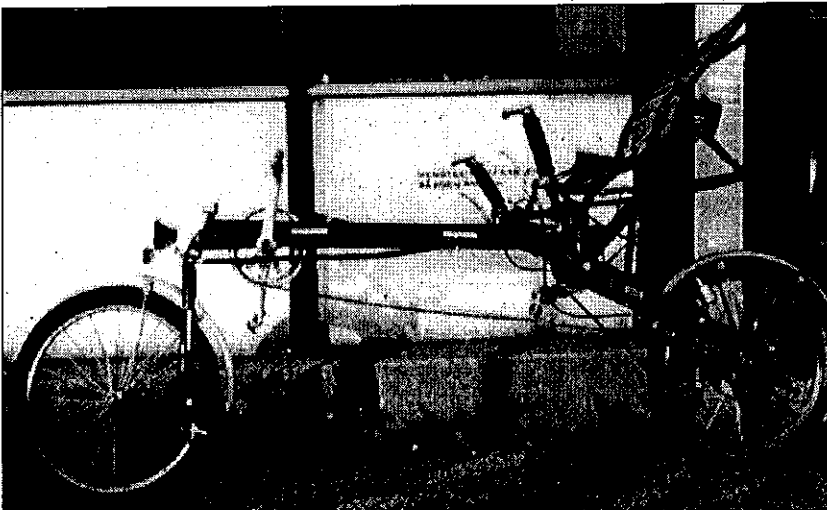
This then presented a small problem - where to now? Jonathon was flying back to London that day. The rest of the Brits were continuing their cycling holiday in the opposite direction. It was raining and we had used up most of our money. The decision was made to go back to London and continue our trip up North from there.

And so ended the 1993 European Championships with farewells to our hosts and fellow competitors early on a wet Monday morning after a very successful event. I now can't wait to go to Amsterdam in 1995 when both the European Championships and the IHPSC (USA Championships) will be combined to make the World Championships. What a great trip that will be!



photograph m dawning

Walter Zorn in his fully-faired bike



photograph m dawning

A fully-suspended LWB



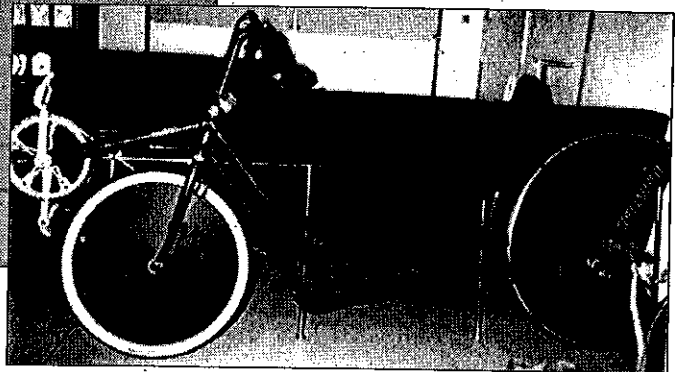
Pat Kinch cornering on the Kingcycle Wasp low rider

photograph s prisk



Steve Donaldson - the bodyless cyclist

photograph s prisk



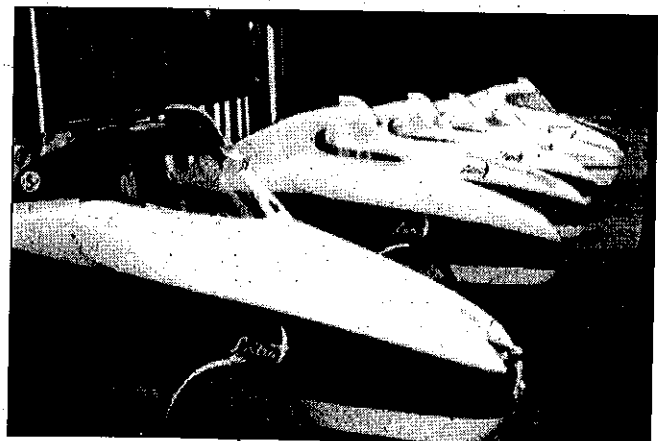
Unknown Low-Rider

photograph m dawning



One of many Danish Leitras - an all weather trike

photograph m dawning



Leitra, upon Leitra, upon Leitra...

photograph m dawning

HPV Challenge '94

by Wayne Kotzur

While the emphasis of the HPV Challenge - the search for practical and efficient alternatives to the conventional bike - is largely unaltered, the event and the organisation have been bolstered. An increased general awareness of HPVs and the formation of an ACT HPV Club has seen the organising committee grow and the level of enthusiasm remains high. This means a broader range of events and the ubiquitous computer will provide event by event result updates.

A major force has been the convert Damien Clarke who competed credibly at the Australian HPV Championships after only six weeks on his short wheel base Kotzur recumbent bike. Damien has since sold his Colnago, preferring a vehicle of the times. He has put much effort into computerising the event and has been chief sponsorship seeker.

To this end the Challenge will now have

cycle-relevant prizes for each event as well as cash prizes for the overall winners. The winner will of course, retain the HPV Challenge Cup for the year.

The venue is unchanged - the Sutton Road Driver Training Course - on the edge of the NSW and ACT border near Queanbeyan. This is a closed course with a wide variety of surfaces and gradients as befits a competition for a do-all vehicle. There have however, been some suggestions to hold the 200m sprint off-course to take advantage of Canberra's excellent hot-mix roads as the driver training course lacks a long "straight". This has prevented really competitive speeds in the sprint for purpose-built speed machines.

Following the experience of the HPV Championships, which went exceptionally well, quite a few lessons have been taken aboard. The shopping race will be altered to avoid the amusing congestion

that occurred in last year's event. A time trial will be instigated and, as the course is adjacent to a competitive mountain bike area, an enduro event will be pioneered this year.

We will be encouraging a static display of manufacturers HPVs. The ACT HPV Association (a subcommittee of Pedal Power ACT) will be selling refreshments as well as HPV related products such as books, magazines, seat kits, fairings etc.

The committee is encouraging all relevant builders and manufacturers to send information and/or samples for display over the weekend. With a series of managed publicity events, the Challenge will be seeking a much enlarged public to view the future of cycling. A professional display of HPV equipment and vehicles will help build interest and membership in the HPV movement.

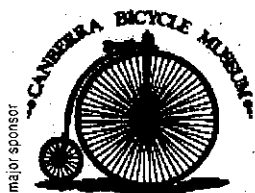
If you are ready to take the Challenge ...

SHOPPING EVENT
200M SPRINT
ROAD RACE
TIME TRIAL
ENDURO

JUNIOR CRITERIUM
OPEN CRITERIUM
DUAL SPRINT
HILL CLIMB
DESCENT



Driver Training Course
Sutton Road, Queanbeyan



major sponsor
Canberra Bicycle Museum
2 Badham Street
Dickson
(06) 248 0999

Further information:

HPV Challenge 1994

5 Woolrych Street, Holder ACT 2611

Wayne Kotzur Damien Clarke
(06) 241 7966 (w) (06) 288 3518 (h)

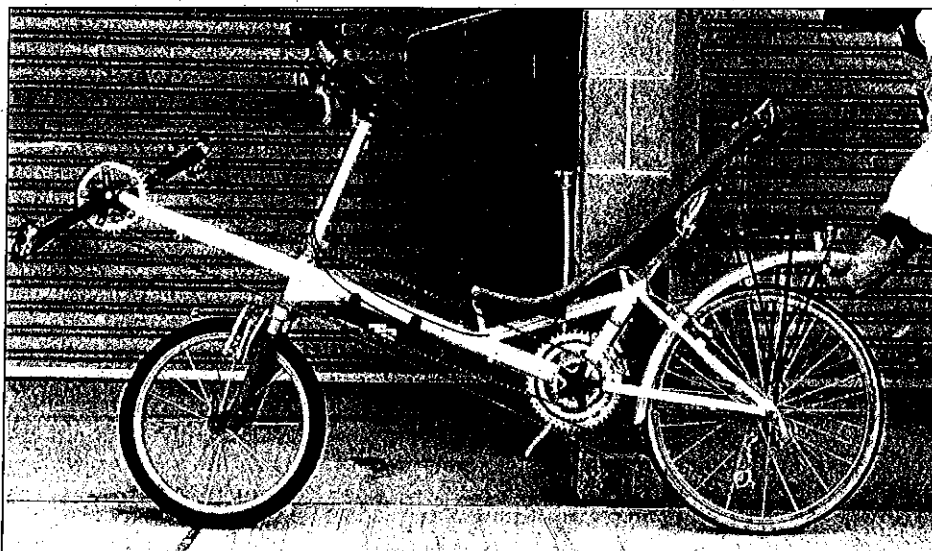


major sponsor
HAMMER 'N' CYCLE

HAMMER 'N' CYCLE
50 MONARO STREET
QUEANBEYAN
(06) 299 6666

Development of a New SWB Design

by Peter Holloway



Close up showing cross-over drive

After rediscovering the joys of cycling more than seven years ago and becoming interested in recumbent bicycles, I have designed and built a succession of these vehicles. The latest of my designs is a very compact, short wheelbase bicycle with small wheels. It features front suspension and a wider than normal gear range. This vehicle was recently awarded the overall prize at the Australian Human Powered Vehicle Championships held last Easter weekend.

The primary aim when building this bike was to overcome some of the limitations suffered by most previous recumbent designs, without compromising comfort, good visibility and practicality.

Firstly, recumbents are often much longer and heavier than traditional racing bicycles and experience has shown that in racing, light weight confers superior performance. My bike was designed around small lightweight wheels and a relatively simple frame design which used conventional bicycle components as far as possible. Future versions of the bike will be made from lightweight Reynolds 531 tubing to reduce weight further.

Secondly, many recumbents do not climb well. This is partly due to excess

weight but more often than not it is due to inadequate gearing and poor seating position. My bike included gearing from 30 to 120 inches; a dramatically wider spread than in any other production bike presently available. It also includes a seat, that whilst small and light, was shaped to cradle the back comfortably when climbing hard.

"My bike was designed around a relatively simple frame..."

Thirdly, although conventional dogma has it that recumbents are far superior to traditional bicycles aerodynamically, I suspect that many have substantially higher Cd's than modern upright bikes fitted out with aero bars and aero wheels. The compact size, laid back seat and small wheels were all designed to help reduce air drag to a minimum. Furthermore, the upright handlebars virtually remove any drag contribution from the arms when riding. So much for the design aspects, how does

it ride? Right from the start this design required virtually no changes. The steering is light but positive without the feeling of indirectness which is present in some short wheelbase designs I have ridden. The bicycle has neutral steering, meaning that it will corner without wanting to under or oversteer. These characteristics coupled with the comfortable seat and low riding position mean that the bike is extremely predictable and relaxing to ride at all speeds.

The bike is fitted with lights, mudguards and pannier racks and is in daily use as a commuter to and from my bike shop. I have also completed several

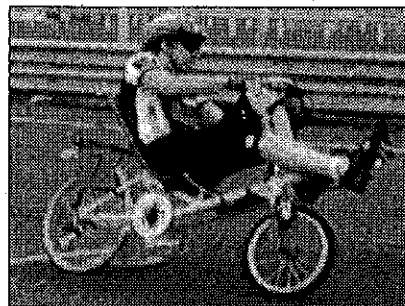
longer weekend rides to date.

I have begun work on a range of future improvements to this design. These include fitting rear suspension which will smooth out the ride on rough roads as well as lowering the rolling resistance of the small rear wheel.

I also have two fairings under way. One a GT version with foam and fibreglass nose cone and fabric body, and the second, a solid, fully enclosed version similar to Gold Rush.

I hope to have all of these improvements completed and well tested in time for the Human Powered Vehicle Challenge in Canberra this November. The only other thing that will then be required is to tune up the motor!!!

Peter Holloway is the proprietor of Cycle Science Mitcham, Victoria.



HPVs Take Over Sandown

by Wayne Kotzur

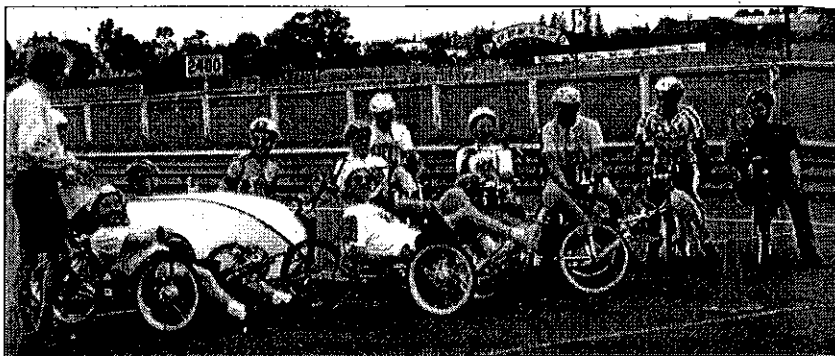
We left Canberra early on a clear and cool morning. Safely packed aboard the cars were several compacted human powered vehicles and their keen riders. We passed a large organised ride - Easterbike - on our eastern approach to Melbourne sharing with the several hundred cyclists the joy of rain - an experience not appreciated by most drivers. As we drove through the rain I wondered what draws people to such a race. Especially a HPV Championship where you do all the hard work.

Nearing Sandown International Raceway, our excitement increased. Obviously many people were coming here to seriously compete: there was much discussion of tactics, windcheating fairings and tyres as the various vehicles were assembled.

I regard myself as a practical user and took every opportunity to meet other riders who use HPVs for practical commuting and touring. Simple designs, readily available componentry and comfort concern me most.

I noted a second group of enthusiasts who support the vast magazine infrastructure of the USA - technojunkies - who like to have the latest, the most expensive and the obscure. Some are keen racers, others are keen armchair designers drawn by the unusual but attainable flavour of human power racing.

The third category and perhaps the most overlapping group are the designer builders. These include commercial local manufacturers like Greenspeed and myself; one-off products by proficient builders; and backyard boys with lots of inelegant steel and rough paint. While HPV riding is enjoying a large popularity throughout the world owing to its comfort and potential speed, most recumbents in Australia are made here. High freight and duty makes importation difficult.



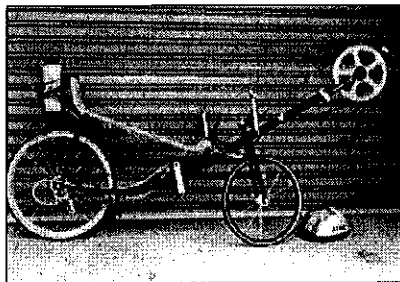
Riders being briefed on the main straight

Hopefully also, our late dawning can avoid many of the heavy, impractical designs that have featured overseas. It was great to get out of the car and onto the bike. The wind in your helmet, the exhilaration of sharp turns, assured quick braking and rapid acceleration reminded me of how far HPVs have come in their Union Cycliste Internationale (UCI)-restrained evolution.

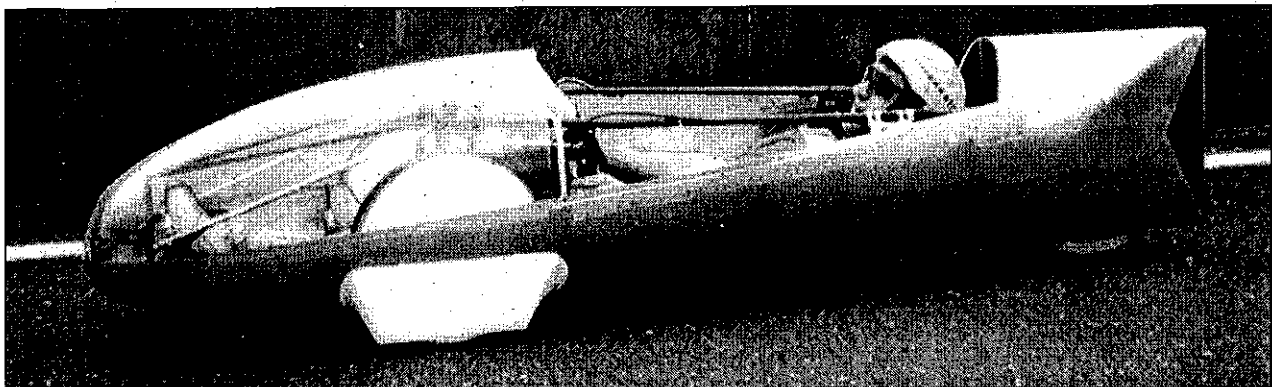
Just as our spirits lifted, so did the weather, and all Easter we had a glorious cool and windless conditions with an excellent road surface and lot of room.

Organised by the relatively new Australian Human Powered Vehicle Association, the weekend's racing was basically a checklist of what the ideal HPV can do. We have events that test maximum speed, aerodynamic drag, manoeuvrability, endurance, control and load carrying. It mirrors the long running Canberra HPV Challenge (see "What's On"—Ed.) in providing lots of stimulating riding for the average HPV user, and a good spectator event. The Melbourne crowd were very vocal and I felt I was racing just as much for the onlookers as for myself.

First event was a slalom, a sprint amongst witches' hats, as a competition of control at speed. Regrettably I had a low number



Grasshopper—a Greenspeed special



Linear drive trike "Fly-By-Wire" piloted by Alan Bishop with full aluminium fairing.



Paul Sims on Grasshopper

pinned to my chest and started first! As my latest HPV bike is only three weeks old I cannot say I won - half-way down the run I realised I should be racing, not just avoiding the obstacles. Sherri Prisk on an English Kingcycle (who I

thought had a few too many test runs!) did well to win in 13 seconds for the 100m. This event was then followed by the twin drag, where cyclists were randomly

matched against each other in heats of pure acceleration. I was, of course, matched with a superman, Rodney O'Dowd on a standard racer who went to second place overall; beaten by Paul Sims on a very light and very low Greenspeed special. Paul said he had to go flat out throughout the run (which is unusual).

criterium heats are traditionally places of chaotic weaving, braking and occasionally crashing. Used to a hilly winding course, the very open course with straight line dashes linked with a simple ramp turn confounded the Canberra riders. The heats went to the fastest four riders for a later final.

We then dashed up an overpass for a pedal-free descent as a test of aerodynamic drag. Alan Bishop's knee-height aluminium fully-faired trike disappeared into the distance, followed by all the faired vehicles. Recumbent bikes then followed with open trikes and traditional bikes behind.

The Sandown Circuit Challenge, a furious single circuit time trial, proved to be a long way round for me, with the fastest rider averaging 37km/h. The Melburnian concern with the "hill" proved baseless - my legs felt tired throughout the event. The final of the Criterium saw Paul Sims crash but still win.

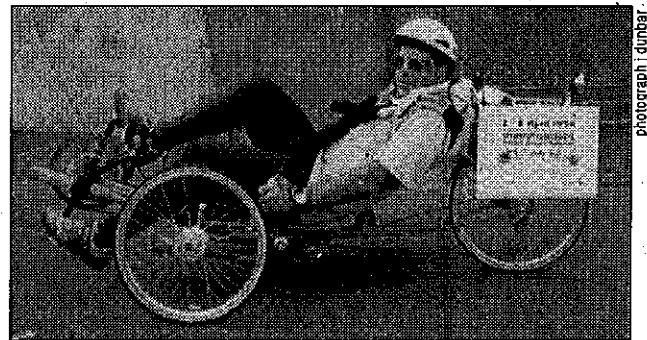


Damian Clarke on Eric by Kotzur during the Slalom

The second day of the Championships, again with fine weather, saw Alan Bishop's trike achieve 59.65km/h in the 200m sprint. Named "Fly by Wire" the trike uses cables (linear drive) to convey the pedal strokes to the drive wheel, as well as steering, to achieve a very low profile. It is so well made it could happily sit in an art gallery or museum.

The road race of ten laps went speedily well for our usual competitive types and rather slower for most. I wasn't lapped twice by anyone (I think) so felt rather good at the finish. Bruno Morett in his hand cranked Greenspeed trike seemed cheerful throughout the run.

A mad shopper meets Easter egg & spoon race, the Manøvreprøver, proved highly amusing for all, with several minor but spectacular falls. This event tied in well with the practical vehicle judging, which awarded points for categories like



Pino Damiano - a moving advertisement on his Greenspeed

safety, luggage capacity, design and integrations. Ten vehicles tied for equal first in the practical.

The last mystery event turned out to be a circuit challenge with time handicaps. Three unplaced riders picked up useful points. My points didn't appear as useful, placing me fourteenth overall in a field of twenty-five.

I came away keen for more, even entertaining the thought of training for better results. But then again, Canberra's winter is upon us and a practical fairing to keep me warm and dry might just give me that extra edge.

Whoever said no gain without pain wasn't thinking HPV.

Wayne Kotzur is a Canberra based designer-builder of HPVs.

The AHPVA would like to thank the major sponsors of the first Australian HPV Championships:

Greenspeed

Cycle Science Mitcham

THANK YOU!

Australian HPV Championships Scores

No:	Vehicle Name	Rider Name:	Slalom	Drag	Descent	Challenge	Crit	200m	Road	Manovre	Static	Mystery	Total	Place
7	Short Wheel Base	Peter Holloway	8	6	5	8	9	7	8	6	10	6	73	1
10	Grasshopper	Paul Sims	7	10	2	10	10	9	10	5	7	2	72	2
6	Kingcycle	Sherri Prisk	10	2	9	9	2	8	9	7	10	2	68	3
9	Lightning P-38	Murray Dowling	9	7	2	6	8	2	7	10	10	DNF	61	4
8	Simmsmetal	Jamie Friday	6	8	2	5	5	5	6	8	10	2	57	5
16	Eric	Damien Clarke	2	2	2	2	7	2	5	2	10	7	41	6
15	Greenspeed Sports Tourer	Rino Damiano	-	2	6	2	6	6	DNF	-	10	5	37	7
17	Greenspeed Sports Tourer	Ian Knox	2	2	7	2	2	-	2	9	9	2	37	7
13	Ultra Trike	Richard Davis	2	2	2	2	2	2	2	2	10	10	36	9
1	Fly By Wire	Alan Bishop	-	2	10	7	-	10	-	-	6	-	35	10
5	Long Wheel Base	Robert Ahyee	5	2	2	2	2	-	2	2	8	9	34	11
12	Apollo MTB	Sally Holloway	2	2	2	2	2	2	2	2	8	8	32	12
4	Tri Tourer	Michael Rogan	2	2	8	2	2	2	DNF	2	8	2	30	13
2	Trusty Rusty	Wayne Koltzur	2	2	2	2	2	2	2	2	10	2	28	14
3	Greenspeed Trike	Paul Segal	2	2	2	2	2	2	2	2	10	2	28	14
11	Radius 16V	Thomas Herbst	2	5	2	2	2	-	-	-	10	-	23	16
20	Road Bike	Rod O'Dowd	-	9	-	-	-	-	-	-	-	-	9	17
14	Proto 1	Ross Harrop	2	-	-	-	2	-	-	-	-	-	4	18
22	Speed Demon	Rachael Sims	-	-	2	2	-	-	-	-	-	-	4	18
18	Hitch-Biker	Glenn & Aaron Parnell	-	2	-	-	-	-	-	-	-	-	2	20
23	Greenspeed Hand Trike	Bruno Morett	-	-	-	-	-	-	2	-	-	-	2	20
25	Repc Hybrid	Robin Friday	-	-	-	-	-	-	-	2	-	-	2	20
24	MTB with Slicks	Greg Richardson	-	-	-	-	-	DNF	-	-	-	-	0	23

Points were calculated as follows:

1st = 10 points, 2nd = 9 points, 3rd = 8 points, 4th = 7 points, 5th = 6 points, 6th = 5 points and all other finishers received 2 points.

Cycling Shorts

Aussie Drops Out of Race Across America

Australian endurance cyclist, Gerry Tatrai, has withdrawn from the 1994 RAAM about three-quarters of the way from California to Georgia. Apparently, Gerry's entry into this year's RAAM was in doubt after a crash during a 24-hour event in Milwaukee a few weeks earlier.

The men's division was won by veteran Rob Kish in 8 days, 14 hours, 25 minutes. The women's division was won by Seana Hogan in a record time of 9 days, 8 hours, 56 minutes.

5th European Championships for Human Powered Boats

These were recently held by the German HPV Association in Hamburg. Full marks to their sponsorship organiser - the event was totally free; no entry fee; free food and drink.

Amazing! Now for the bad news. Firstly, they are over. Secondly, the competition was open only to people residing in Europe.

Laid-Back will publish the details of next year's event so all interested can lobby the organisers to relax that rule. Now, do any of their sponsoring companies have Australian offices?

Graeme Obree to attempt HPV record

The UCI used-to-be-legal 1-hour record holder, Graeme Obree, will be attempting to break the world HPV 200m sprint record of around 108 km/h. The attempt in September will be made using a long wheel base bicycle made by Hotta Design, an English company more familiar with constructing Formula 1 race cars.

Microsoft Head Invests in HPVs

Rumour has it that the richest man in the USA, Bill Gates, has bought an HPV. The head of Microsoft is said to be the proud owner of a (second-hand) WindCheetah.



Photograph by Dunbar

In the beginning...massing on the start line

One Recumbent Races the Roadies

by Murray Dowling

Sherri Prisk, riding a fully-faired Kingcycle, has blitzed a talented field to win the Melbourne 'Cenovis Tour de Femme' women's road race. The defeated included Kathy Watt (Olympic Gold & Silver medallist), and Michelle Ferris (Silver at World Junior Sprint Championships).

The Cenovis Tour de Femme is an Australia-wide series of races that are advertised as races and fun rides for both competitive and novice riders. The series aims to encourage more women to cycle.

About 300 women lined up for the 8 o'clock start in the bayside suburb of Altona. The morning was cool and cloudless and the 20 kilometre course was very flat and very straight making it an ideal race for faired recumbents.

The route was up and back with the start/finish about one third of the way along the route. Thus the riders were to pass the start/finish point after 13 kilometres and continue 3.5 kilometres further before returning along the same stretch of road to cross the finish line to glory (or relief).

The reaction to the recumbent at the start was mixed - but could generally be sum-

marised as enthusiastic from those there for a fun ride, and derision from those there for a race. There were exceptions in both cases of course. It was encouraging to see some racers looking with interest before the race.

Sherri was nervous as this was her first time racing outside HPV events. Starting near the middle of the pack, Sherri quickly moved up to the leading group of 30 riders. She stayed with the leading group as she was unsure of their race tactics and relative abilities.

Kathy Watt made a number of attempts to break away, but the bunch mostly kept with her each time, although slowly dwindling to 20 at the 13km mark when passing the start/finish line for the first time.

The pace picked up after the final turn, and Sherri decided that she should start pushing a bit harder. Panic set in when she thought she had taken a wrong turn (on a straight road?) as there were no other riders around or visible in her mirror.

From the finish line, the crowd could see only the final 700 metres of the route. Most of the riders had not yet reached the start/finish point for the first time when the cry went out from the crowd - "There IT is!",

as indeed 'it' was.

Sherri flew across the line a little earlier than expected as the organisers had not completed hanging a sponsor's banner up to mark the finish line. The official was so overwhelmed that the banner never got off the ground - to the annoyance of the sponsor.

The rest of the bunch came into sight after Sherri was already coasting back to the finish line and was ready to dismount. Sherri broke away with 3,500 metres to go and won by well over 700 metres - out-sprinting some of Australia's best racers.

There was a close battle for second place between Michelle Ferris and Kathy Watt, going to Michelle by half a wheel. Most of the crowd missed this battle as they were still staring at Sherri's Kingcycle that had rolled back to the finish line.

The reaction to the Kingcycle had changed. Some of those who scoffed before, now had to admit that it was fast (especially as most competitors only saw it from behind).

The official reaction had not changed though - Sherri was still ineligible to take a slice of the \$900 prize money.

Although one press release was prepared announcing Sherri's win, the official results went out with no mention that there was a recumbent in the race at all. (Actually, there were two. A tandem recumbent trike powered solely by the captain came in last).

The event was accurately reported on national TV by TEN's *Sports Tonight* ("Kathy Watt upstaged by Sherri Prisk"), by the news section of Melbourne newspaper *Herald Sun* ("Watt is beaten"), and by *Australian Cyclist* magazine.

The Cenovis Tour de Femme was a well-organised and well supported event. It provides the opportunity for any woman to try racing, or treat it as a fun ride. For Sherri, it gave her some experience of the race tactics used by elite riders; something she would have missed by not remaining in the lead bunch.

Although times have been lost by a hard disk failure, Sherri's time was around 28½ minutes giving an average speed of 42km/h. She is looking forward to improving at next year's Tour de Femme as part of her build up to the World HPV-Championships (see "What's On"—Ed.).

Sherri would like to thank Peter Holloway of Cycle Science Mitcham for the use of his fairing and Kate Morgan of the Victorian Cycling Federation for allowing her to enter.

Maryborough - Trike City

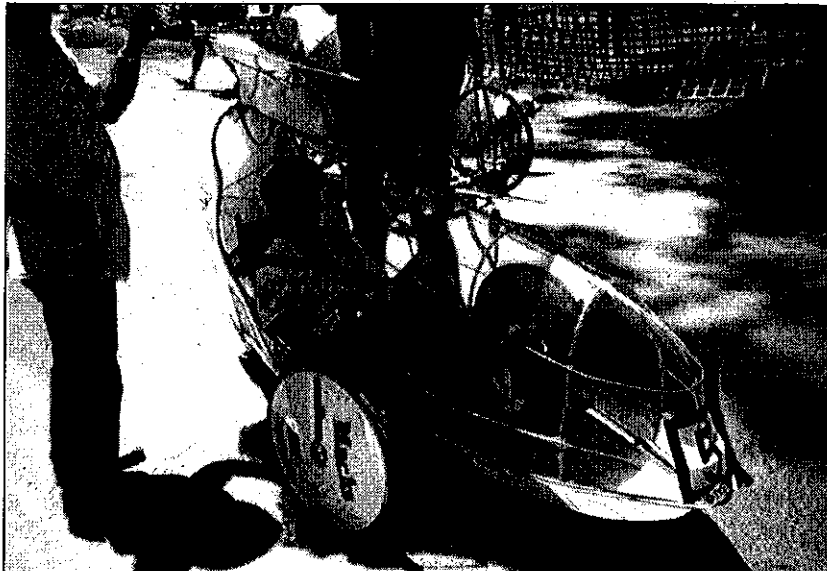
by Paul Sims

The RACV Energy Breakthrough was created by the Country Education Project, the Victorian Component of the National Country Areas Program. It is an event to encourage teachers, students, industry, researchers and the community to work together and develop an energy-efficient vehicle.

In other words a school team (teachers and students) design and create a vehicle over the school year with the aim of racing it at the end of the year.

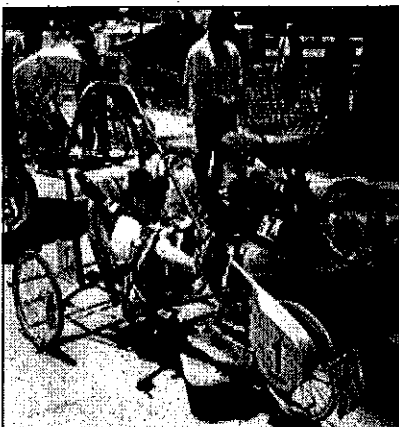
It is held in the town of Maryborough on a specially selected road circuit, approximately 1.3 km in length.

The first event of the weekend is an event for Primary School students using Smiley Carts that they have constructed.



photograph p sims

Maryborough Primary School rider being sheltered from the sun



photograph p sims

Bairnsdale Primary (No: 1) and Morwell Park Primary (No: 7) on the grid.

The Smiley Carts are basically billycarts (remember them?). Each team is made up of four male and four female students. This event requires the teams of students to assemble their cart from scratch to show their understanding of the carts construction, and it is timed. Once their cart is completed it is pushed in a relay race twice around the track. There are four change-over points around the circuit where the driver and the pusher swap. There is a series of heats and a final. It is a fantastic insight for the Primary School students and gives them a taste for future events.

The main event of the weekend is the 24 Hour Marathon. There are two categories of vehicle: Human Powered and Hybrid Powered (a combination of human and motor power sources).

There are four classes:

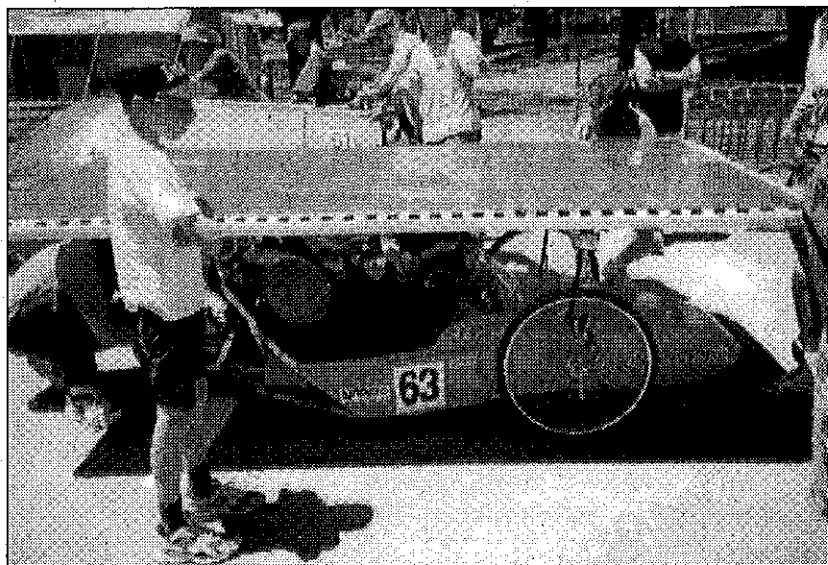
- A Primary School Students
- B Students in Years 7 to 10
- C Students in Years 11 & 12
- Open Apprentices, TAFE Students

Each team is made up of eight riders with four male and four female students except in the Open Class where there is no set ratio - they can have all male or female if they wish. All riders in each class must be students.

Each team must give a presentation of their vehicle (once it has passed the scrutineers) showing the development of their vehicle and a knowledge and understanding of what they have created.

Design and construction is assessed by a panel of judges with marks awarded as follows:

20%	Design & Construction
25%	Display & Presentation
55%	24 Hour Event



photograph p sims

At least Swan Hill High School's Hybrid had built in shade!



photograph p. sims

"Rampage" by John Paul College rides into the sunset.

I went to the inaugural event in 1991 to display our Greenspeed machines at the request of the organisers. What I didn't anticipate was Templestowe Tech, a school which we assisted, asking me to

"tough scrutineering is done before machines are even allowed to practice"

ride with them as part of their Open team. I agreed and there started the addiction. The machine we rode was pretty average, which they admitted - they wanted to race a Greenspeed instead! To cut a long story short, I competed and thought I was going to die after we finished! The 1991 event was only a 20 hr event; 1992 was 22 hours and 1993 was 24 hours. Even though I said "never again", the next year I entered with my brother Michael and our friend Justin - the all school student rule not coming in until 1994. We entered a machine which I had built and we came third overall (that's another story). Oh, and by the way, Templestowe Tech came second overall using one of our Greenspeed nose cone fairings.

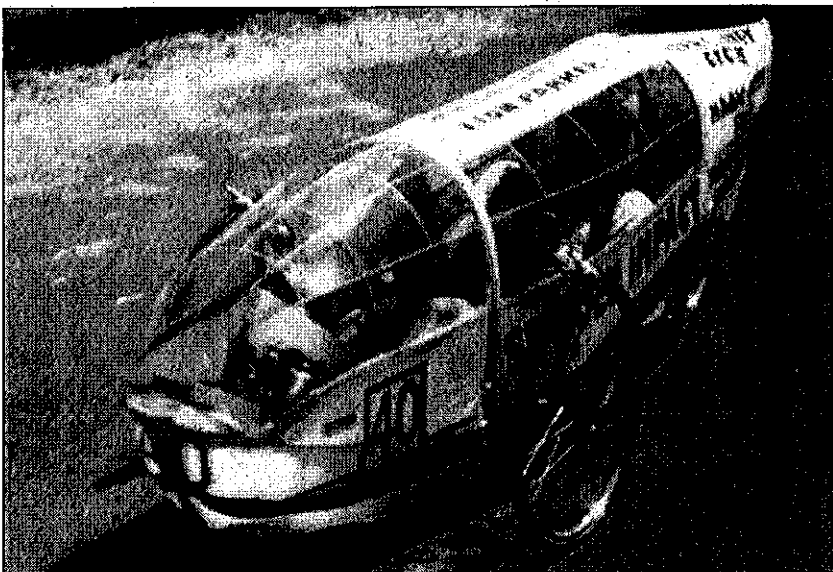
Friday I rode into Spencer Street station, caught the train to Castlemaine and rode to Maryborough. As I rode I saw school students working furiously on their machines. Pretty tough scrutineering is done before the machines are even allowed to practice on the circuit. It is usually difficult to pass the scrutineering first time.

I met up with Wonthaggi Secondary



photograph p. sims

A view of the course around the lake

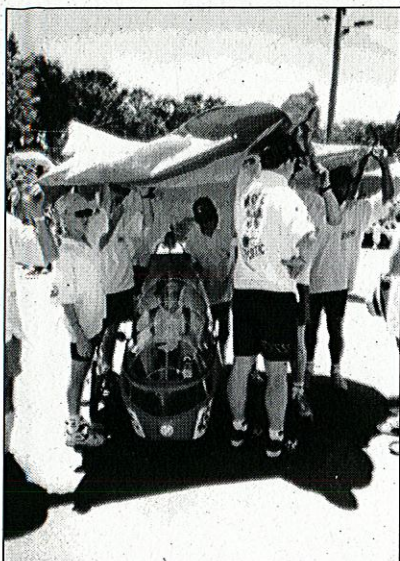


photograph p. sims

"Sudden Impact" by Aberfoyle Park Secondary College

College with whom we had many dealings, and helped them fine tune their fairied tricycle. They had used a standard recumbent tricycle configuration, with corflute as the underneath and rear sides of the fairing and heat shrink packaging wrap over a light tube frame for the front of the fairing. Heat shrink wrap is one of the most popular materials used on the vehicles at the Energy Breakthrough as it is fairly tough compared to other wraps, inexpensive and easy to use. It makes a

Maryborough ...continued



photograph p. sims

"More Cycotic" by Robinvale Secondary College seeking relief from the sun

very transparent windscreen in a short time.

By the time I got to Maryborough most of the schools had completed their presentations so, unfortunately, I don't have much to report on.

On Saturday the Smiley Carts were first up captivating the crowds, racing neck and neck around the circuit. Personally I don't know if I would want to push a billy cart around such a large circuit - it looks like too much hard work for me!

The next event was the 24 hour marathon. Wonthaggi asked me to give their machine a final once over before the race. Fortunately I did because the rear derailleur cable fixing bolt came loose, which we quickly rectified.

All the teams lined up on the grid, many shaded by umbrellas and blankets. I felt sorry for the riders in their fully-enclosed machines because the sun was quite merciless. I used the delay to my advantage and managed to photograph most of the competitors. At around 1:10 pm the race was finally underway. The first lap is done behind a pace car, which I think is pathetic. Why make them all line up in order behind the car, when they can't take off once the flag is dropped? The start was still exciting though, with Emerald Secondary College's entry in the Hybrid category stalling on the line.

All in all, 51 vehicles entered: 7 A Class, 10 B Class, 10 C Class and 15 Open Class, plus 5 B Class and 4 Open Hybrid entries.

Fortunately for the Primary School entrants they get to take a break from racing at 10:00 pm and don't resume until 6:00 am the following morning.

The racing is great to watch especially around the tight bends: Riders showed their cornering talent as their vehicles lost traction on these corners with many vehicles coming to grief with not only mechanical problems but also misjudging speed and distance. Some even rolled over!

It was good to be a spectator at this event as it enabled me to see how the vehicles cornered. Geelong Catholic Regional College was one of the more spectacular entrants with their fairing actually rubbing on the ground as they cornered. Other vehicles that were exciting to watch were the Hybrids, two being human/motor assisted. Emerald Secondary College had negotiated a corner at great speed, performing a spectacular slide which resulted in a buckled wheel.

Watching during the night gave a different perspective on the event with the difference in lighting systems going from car headlight to a small torch beam. I didn't think that it was a very good test for lighting as the circuit was fairly well lit except along the straights.

For once I went to bed during the night, after racing through the night in the previous two Energy Breakthroughs.

By Sunday most of the students, as you would imagine, looked pretty drained. I

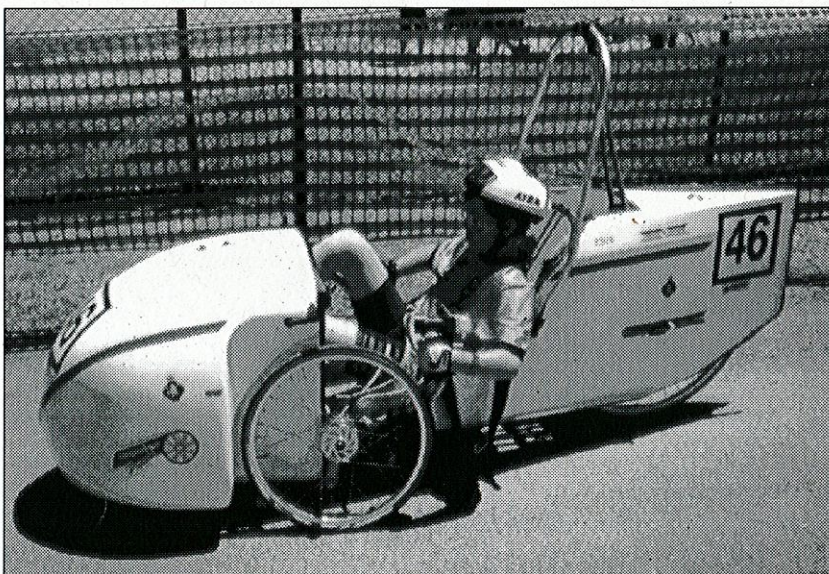
approached the schools I was friendly with to check on their progress. Most reported good results. Wonthaggi had rolled their vehicle a few times, Don Elliott's machine had gone through a numerous amount of spokes, Aberfoyle Park had used quite a few sets of wheels and Brunswick Secondary College had broken down many times. I heard stories of Swan Hill High's Hybrid winding up for a fast lap at night (without the added weight of their solar panels) reaching speeds of

"Watching during the night gave a different perspective"

around 80 km/p. One of Geelong's vehicle rolled and spun on its side like a top! One of Aberfoyle Park's vehicle had been rammed by Emerald Secondary College's Hybrid vehicle because they had tried to push by in the wrong spot.

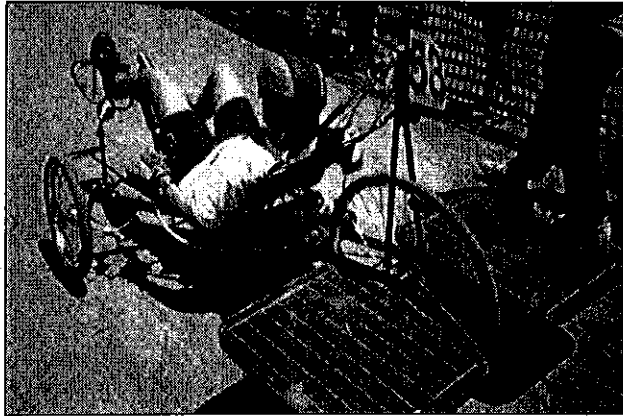
It was certainly exciting to hear of the action and as the finish time approached, spectators gathered, teams lined up to video their vehicle's final lap and a huge cheer went up as the winning vehicle crossed the line!

Overall the machines were of a higher standard than previous years, showing that students and teachers had expanded their learning curve. Many more vehicles were faired with front wheel drive starting to gain in popularity. A range of dif-



photograph p. sims

Don Elliott's machine in action



Swifts Creek High School Hybrid creation

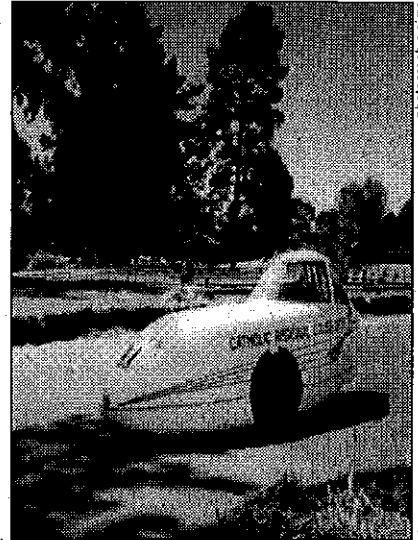
photograph p sims

the need for roll bars. I haven't seen many chain guards on bikes these days, have you? I think that the main problem is that these events are organised by car users who rarely actually cycle and think that cycling is unsafe. I feel that there is no use taking the "wrapped in cotton wool" approach, people

must learn from their mistakes. There is too much "what if this happens" going on. The hybrid vehicles are the closest things to cars - they need looking at and not the pedal cycles.

Well, if you have read this far and not fallen asleep, I would like to say thanks and hope to see you at this years RACV Energy Breakthrough in Maryborough (see "What's On"—Ed.).

Paul Sims is a builder of Greenspeed Recumbents



Geelong Catholic Regional College

photograph p sims

"for once I went to bed during the night."

ferent materials were used in construction from aluminium, wood, mild steel, plastics and even cardboard. Heat shrink wrap was the most popular for canopies.

The structural failures I saw included Brunswick Secondary College's vehicle which was made of Reynolds 531 mild steel - it had been overheated during construction reducing the frame's strength - it had been braced several times during the event, further weakening the steel. Another was John Paul College who were using an aluminium frame with three quarters of a crossmember being braced and on the last lap it cracked right through the brace. The amazing thing about this vehicle was that it used tubular 20" tyres which stayed on for the whole race!

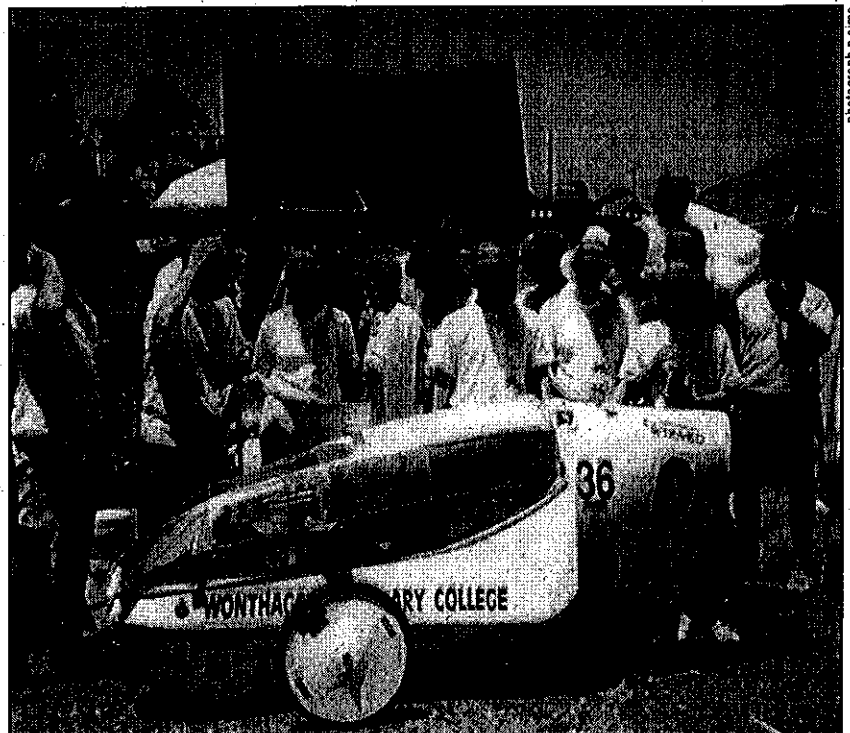
The human/petrol hybrids debuted at this event with very impressive speeds being attained.

Many rules are enforced for this event, the majority of which have been taken from the South Australian Pedal Prix. The aim of the event is to create a machine using no boundaries of traditional thought. Sounds great, doesn't it? But there are boundaries that have to be complied with, which impede free thinking. They have to create a vehicle around some of the following: three or four point seat belts, roll bars, guards covering the entire drive system, three or more wheels (preferably two wheel with front steering) and specific positioning of hand controls.

Current IHPVA rules have no design specifications with vehicles recording speeds of over 100 km per hour without

24 Hour Results

40 Aberfoyle Park High School	Open	510 laps
23 Geelong Catholic Regional Col.	C	497 laps
45 Robinvale Secondary Col.	Open	470 laps
41 Geelong Catholic Regional Col.	Open	461 laps
50 Aberfoyle Park High School	Hybrid	458 laps
(each lap is approximately 1.3km)		

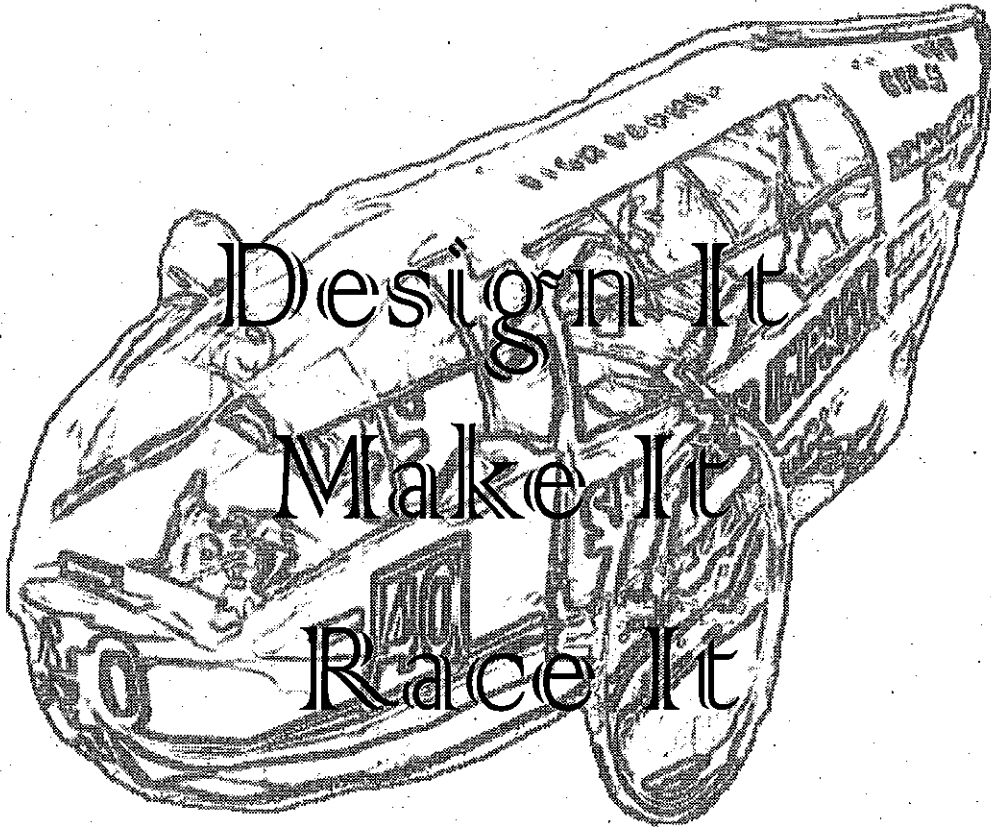


Wonthaggi Secondary College team photo

photograph p sims

*The Technology Teachers' Association of South Australia
The Engineering Employers' Association of South Australia
and the many sponsors of the National Pedal Prix competition
are pleased to extend an invitation to all interested people to attend*

The 1994 National Pedal Prix Competition



30 September 1994

Leader Street, Wayville, SA

9:00 to 2:00 Scrutineering & Judging

1 October 1994

**Adelaide International Raceway,
Virginia, SA**

8:00 to 11:00 Scrutineering & Judging

11:00 to 12:00 Pushcart Competition

1:00 Start of National Pedal Prix Race

2 October 1994

**Adelaide International Raceway,
Virginia, SA**

1:00 Finish of National Pedal Prix Race

1:15 Presentations

for further information contact:

Mr John Bussenscutt, Scotch College, Carruth Road, Mitcham SA 5064.

Phone (08) 272 7511 Fax: (08) 271 7916

Coming Events ...

25 - 28 August 1994 European HPV Championships Laupen, Switzerland

The European HPV Championships are to be held in Laupen, near Bern.

On Thursday 25 August 1994 the 2nd European Seminar on Velomobiles will be held in Laupen Castle. The theme for this years seminar is "Safety and Design" being presented by some of the world's leading designers.

(Notes on proceedings may be available for purchase - to be confirmed—Ed.)

There will be several events in the following classes: Racers, Commuters, Arm-Powered, Multi-Rider Vehicles as well as an event for Rail Bikes. There are also subclasses including: faired and unfaired.

Contact:
Andreas Fuchs
Physikalisches Institut
der Universitaet Bern,
Abt. KUP, Sidlerstrasse 5,
CH-3012 Bern
SWITZERLAND
Phone: +41 31 631 4465
Fax: +41 31 631 4405

30 September - 2 October 1994 1994 National Pedal Prix Adelaide International Raceway

With remarkable successes over the past eight years, this year's event will see more than 800 young people competing in the hottest contest for environmentally-sustainable transport technology in Australia.

Australian records have been achieved each year and in both 1991 & 1992 World Records were set. Our own computerised lap scoring system uses passive card / backscatter technology to ensure that lap counting and fastest speeds data are 100% accurate over the entire race time of 24 hours.

This year's event will include several examples of a new hybrid class in the form of pedal + petrol and pedal + electric vehicles. These hybrid vehicles herald the development of what many consider to be the short-trip commuter vehicle of the future.

Contact:
John Bussenscutt
C/- Scotch College
Carruth Road
MITCHAM SA 5064
Phone: (08) 272 7511
Fax: (08) 271 7916

19 - 20 November 1994 1994 HPV Challenge Canberra

This annual challenge, organised by Pedal Power ACT, is held at the Sutton Driver Training Course just outside of Queanbeyan. A weekend of friendly competition and great socialising on a closed, car-free course.

Events include sprints, slalom, hill climb, time trial, road race, criterium and more.

Be sure to send in your entry before the Early Bird cut off—12 November—and take advantage of the discounted entry fees.

Contact:
Damien Clarke
5 Woolrych Street
HOLDER ACT 2611
Phone: (06) 288 3518

25 - 27 November 1994 1994 RACV Energy Breakthrough Maryborough, VIC

The 1994 Energy Breakthrough is designed to provide opportunities for students, teachers and members of the community to expand their knowledge and understanding of technology as it affects the way we live and learn.

Come to Maryborough and watch Primary Students compete in their pushcart competition.

Enjoy a fun-filled, educationally-exciting weekend starting on Friday with a Mardis Gras - the focus of which is the Breakthrough.

Team presentations continue on Saturday until 1:00 pm when the 24 hour team relay commences (Primary Students race for 16 hours). Stay up to see who crosses the finish line first on Sunday!

Contact:
Jenni Allen
The 1994 Energy Breakthrough
C/- City of Maryborough
PO Box 194
MARYBOROUGH VIC 3465
Phone: (056) 611 566

12 March 1995 Argus Cycle Tour Cape Town, South Africa

South Africa's premier annual cycling event - the Argus Cycle Tour is the world's biggest and most spectacular integrated bicycle event.

Race against more than 17,000 professional and amateur racers - on your HPV! Each rider is timed and ranked and there are prizes for various categories.

HPVs have "won" this event several times:- Wimpie van der Merwe and David George riding Mike Kramer front wheel drive vehicles came in first (record time) and second respectively in 1993.

Plan now and make your presence felt in '95.

(Further details will be provided as soon as they become available—Ed.)

25 August - 3 September 1995 *(Provisional Dates)* World Championships Amsterdam, The Netherlands

In 1995 the European HPV Championships will be run together with the International Human Powered Speed Championships under the combined banner of "World Championships".

See Europe and Americas best *(with a few Aussies I hope—Ed.)* competing, in what will be the biggest gathering of HPVs this decade.

(Further details will be provided as soon as they become available—Ed.)

Send in your "What's On" contributions to:
AHPVA "What's On"
478 Whitehorse Road
Mitcham VIC 3132

The roles and objectives of the AHPVA are:

◆ **to promote the use of all Human Powered Vehicles**

◆ **to provide a stimulating forum for members to share ideas and experiences**

◆ **to organise competitive, recreational and utility activities for all members**

◆ **to act as an advisory body on HPVs (including keeping speed & distance records)**

AHPVA
478 Whitehorse Road
Mitcham VIC 3132
AUSTRALIA