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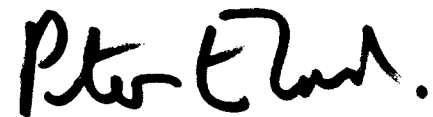
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I hope you enjoy the read.



Peter Eland  
Editor and Publisher,  
*Velo Vision*

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VELO VISION AND VELO-VISION  
We weren't first with the name. Velo-Vision (note the hyphen) is a progressive HPV-friendly bike shop in Körten, near Bergisch-Gladbach, Germany, who also make their own recumbents. *Velo Vision* magazine is working in friendly harmony with Velo-Vision in Germany.

*Velo Vision* is printed on paper produced from sustainable forests to Nordic Swan standards.



#### COVER PHOTOGRAPH:

Andrew Walters rides his prototype Monval Excel semi-recumbent tourer.

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Both photos by Peter Eland.

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### SURPRISE!

I keep on being surprised by bikes. The electric bike review and Stokemonkey report show just how much of a practical proposition today's quality models have become. The Catrike review overturned my ideas on trike direct steering and amazed me with the performance on offer for under £1000. Riding Andrew Walters' 36"-wheeled bike showed that semi-recumbents need not be slow. And Bike Friday's Tikit, seen at the SPEZI, promises to be an extremely exciting development in folding bikes. On a smaller scale, the Weber mLite is one of those simple inventions so useful I'm still amazed it hasn't been done before.

There's more, too, as you'll read in this issue of *Velo Vision*. It's a reminder to keep an open mind, to revisit assumptions. Improvements in materials and technology, or just clever design, can make practical transport solutions out of ideas which just a few years ago seemed non-starters. It's an exciting time to ride your bike!

Peter Eland

# MORE 'E' VICAR?

**Paul Robison in flat-as-a-pancake Cambridge and Chris Stebbing from hilly Sheffield were both keen to try electric bikes – and so they've compiled this thorough report for Velo Vision on their experiences using three of the latest models**

## OPENING THOUGHTS

*From Paul in Cambridge:*

Maybe it's an age thing, maybe it's an engineer thing – I'm not sure. But I find electric bikes more and more fascinating. And a recent chat with my old engineering friend Chris revealed that he felt the same way, so the plan I had been hatching to review a few electric bikes began to take shape. My commute is relatively long (I never knew how long until the display on the Sparta told me it was 16 miles) but pancake flat, so how could I test them on hills? I wasn't keen on riding up and down Castle Hill in Cambridge several hundred times. But hang on! Chris lives in Sheffield and all I associate with Sheffield is knives and forks and hills.

So these bikes have been tested for endurance over some long flat commutes on some pretty rough tracks along the disused railway line between Cambridge and St Ives. And, probably more typical of their intended and likely usage, they have been used as practical transport for lots of short hilly journeys. Chris is a vicar at Saint John Park in Sheffield and has been looking for an environmentally friendly way to get around. Forget Dibley: Chris is from a tough parish and wouldn't want to invite ridicule. In comparison, all I have to contend with are suicidal rabbits and cyclical drivers who try to bully me onto the pavement.

Incidentally Chris and I come from different ends of the spiritual spectrum, so please excuse the blasphemy and hackneyed vicar puns for which I take the blame entirely!

**Paul Robison**

*From Chris in Sheffield:*

The flat landscape of Cambridgeshire, clear cycle routes with long runs at steady speed – yes, we can all see how an electric bike could be viable in these idyllic conditions. But how many of us live in that perfect environment? What if everywhere you go involves serious hills? What about the power-sapping stop-start of urban driving? This is where the real test began.

Sheffield is a city built, like Rome, on seven hills. It's a harsh environment for cyclists – there are precious few cycle paths. Bikes share the roads with growing numbers of cars, buses and trams. Sheffield's air quality is now in places as bad as it was in the days of the dreaded Sheffield Smog. But the cause is no

longer steelworks belching out smoke – there's very few of those left. The cause is our old friend the motor vehicle, ably assisted by the smoky diesel train.

My work as a parish vicar involves a lot of short journeys around our inner city parish. The vicarage is towards the bottom of a long, slow hill (City Road) which has the crematorium half way up. The visibility of getting around by bike is very appealing in my job – people will see you as you travel to and fro, and they will know that the Church is alive and well and still there when they need it. However, the practicalities of time and the physical effort needed to cope with the local hills mean that the car is just too comfortable an option. I need to arrive at my destination fresh and ready to lead a service, or give of my best to people – I can't afford to be tired or out of breath.

Could the electric bike really be a viable option for me living and working here? Are they good enough to make me leave my polluting car at home? Time to find out.

**Chris Stebbing**

## ARE ELECTRIC BIKES A GOOD THING?

More and more around Cambridge I (Paul) notice people pottering along on electric bikes – more often than not just sitting there with the saddle stupidly low and with no intention of pedalling. These bikes tend to be cheap and nasty skip-fodder bought from motor spares shops, with lead-acid batteries and nameless frames and components.

Most of the bikes shop owners I've spoken to in Cambridge are dismissive of electric assist bikes for various reasons, from the snobbish "we only deal with real bikes" to the pragmatic "they are a nightmare to service".

I don't want to devote too much space to the argument, but the basic objections seem to be either that it's 'cheating' or that it's not going to save the planet because the electricity still has to be generated in a power station. How you view these arguments depends on how you rank the benefits of cycling – which readers of Velo Vision know very well: personal (health, saving time over walking and often over driving); public (less congestion, less pollution); or pleasure (i.e. you cycle just for the sheer joy of it). Personally, my motivation is the last of the three and I think that the others follow as a consequence. As for wanting to get other people to share the joy, I know electric bikes aren't perfect but at least they're better than a car.



**Our reviewers tested three high-end electric bikes: from left to right we have the Sparta Ion, the Airnimal Joey Move, and the Ezee Forte from 50Cycles.**

## THE BIKES

The three bikes here take very different approaches to using a motor to help you on your way:

- Perhaps the simplest option is that used on the Ezee Forte from 50Cycles: a motor in the front wheel with a throttle-like control on the handlebars. This is independent of the drivetrain and therefore you don't have to pedal if you don't want to.
- The Sparta Ion uses a motor in the back wheel hub which only assists when you pedal.

- The Airnimal Joey Move system is similar to the Sparta but goes one step further and re-charges the battery when you apply the brakes.

There is a fourth option: this is to help the chain on its way with a motor just behind the bottom bracket. This system was used very successfully on the Giant Lafree (no longer available) and is still used on the Swiss Flyer range (see SPEZI report). Then of course there are other power sources, such as fuel cells, but that will have to wait for another review.

# AIRNIMAL JOEY MOVE

## PAUL'S REPORT:

I have to confess that the Joey is more like the type of bike I would usually ride (at least on my commute). Even without the BionX motor, the sporty position and lively nature make you want to go faster (even if you're not capable).

Whilst the Forte has one ace up its sleeve, the Joey has two: the clever regenerative braking and... it folds! The BionX system has been very well integrated: the cabling is neat and the fold is virtually unaffected. I was able to get it into a very small car with no trouble at all in less than a minute.

The controls for the BionX consist of four 'assist' levels, 'off', and four 'regenerate' levels. I tended to leave it on +4 assist all the time. In auto mode, the regeneration also happens when you lightly apply the front brake (there's a switch on the brake lever). So if you are just slowing down gently you have to remember to use the front brake and not to squeeze it too hard, so that you regenerate and don't wear out your brake pads.

The noise from the motor is slightly louder than from the Sparta (which you would have to have bat ears to hear) but quieter than the Forte. A few little bars on the display show how much it is assisting or recharging and it was so quiet I often had to check these to see if I was getting any help. Once I was cruising at about 20 mph (something I don't normally do) and was surprised to see that it was indeed '100% me' (well, 95% me and 5% coffee and walnut cake).

## SLIGHT NIGGLES

- There was a rattle in the battery box (but due to a previous rider having lost the key I couldn't open it up and sort it out, nor have a peek at the battery!).
- As tested, the Joey had no mudguards, rack, stand, lights or lock, so direct comparison of the weight would be unfair. But nevertheless, this is a lighter bike meant for quick road riding (and all these accessories can of course be fitted).
- At first the regeneration took me by surprise, not so much because of the slight noise but because when you apply the front brake, the braking happens at the back wheel. It just feels a bit odd, but you get used to it.
- A black casing for the BionX battery would make it blend in better on a black bike.



## CHRIS'S REPORT:

**Route:** Service at neighbouring church  
**Distance:** 2 miles each way  
**Terrain:** Continuous up hill – approx 1 in 10 gradient on major road. Reverse on return.

The BionX coped pretty well going up the gentle hills. There's little extra weight to a normal bike, so with gentle pedalling I managed a creditable 10 mph up hill. The regenerative braking is interesting: as you touch the front brake lever the rear hub starts to absorb power from the wheel, effectively braking the bike, but putting the energy back into the battery for future use. Coming home down the hill I switched this feature on permanently, and this gave a gentle braking effect, keeping my speed down to a comfortable 30 km/h.

**Route:** Several parish visits  
**Distance:** Typically ½ mile each way  
**Terrain:** Steep down hill – approx 1 in 5 gradient on minor road. Reverse on return.

Again on the flat you're soon up into top gear and cruising along at 15 mph. The BionX did manage to get me up the steeper hills, although a fair amount of pedalling was needed.

People often stop and ask about the bike. 'Does it charge up as you pedal?' was a common question. No, it doesn't – it would be inefficient to convert your pedal effort into electricity to then put it into the motor, and it's more efficient and far simpler to just drive direct through the chain.

But hang on a minute: when you pedal up hill you gain potential energy as you gain height. If you then use the regenerative braking down the other side you will charge the battery up, so in this case you have pedalled to charge the battery!

**Route:** Chapter meeting at the far end of the deanery  
**Distance:** 12 miles round trip  
**Terrain:** Total 5 miles up hill (1 in 10), 5 miles down 1 mile flat, 1 mile up steep hill.

The power control and display work well, showing how much power you are taking out or putting back into the battery. The system seems to know how hard you are pedalling, and responds accordingly – if you pedal a little harder, the bars creep up the display and you feel more power coming on. As you ease off, so does it. I guess this means maximum battery life, and it prevents you from getting lazy.

Down hills I let the speed creep up to around 40 km/h, then put on the regenerative brakes. Setting -2 trimmed the speed to a comfortable 30 km/h and the meter reported power flowing back into the battery. Well, it's better than losing all that energy to wind resistance or warming up your brake blocks!

Endurance was good too – power seemed to be fading a little at 18 miles, but a quick run downhill put enough back in to take me home – overall endurance at least 20 miles.



## LIKES:

- Lightweight (20 kg)
- Power unit can be fitted to existing bike
- Regenerative braking
- Power display

## DISLIKES:

- None

## Price as tested £1499

Available from Airnimal Europe: Tel 01223 523973 or see [www.airnimalfoldingbikes.com](http://www.airnimalfoldingbikes.com)

**LEFT:** The BionX display and control unit offers assist and regeneration settings and a power indicator as well as the usual speed readout

**BELOW LEFT:** Our reviewers would have liked the BionX battery box in black to match the frame

**BELOW:** The motor is built into the rear wheel. Adding the electric system doesn't affect the bike's fold



## CLOSING THOUGHTS

*From Paul in Cambridge:*

My 16 mile ride to work usually takes me about an hour each way. I really didn't know how far it was – I had always guessed about 15 miles – but it's about an hour, plus or minus 10 minutes depending on the way the wind is blowing. The total elevation change is probably about 6 foot.

After commuting on these bikes for a few weeks (with no punctures or mechanical problems, by the way, despite my journey including some rough farm tracks) I concluded that they didn't really save me any time because of the speed limiting, but they did save effort and, therefore, sweat. So I was more attractive to my colleagues (well, less unattractive) and less exhausted in the evenings.

The exception was the Ezee Forte with the speed limiter removed (for off-road use only of course) which saved about 15 minutes because I could cruise at over 20 mph.

**Paul Robison**

*From Chris in Sheffield*

If you're a cyclist and you still want to keep fit, you might prefer the Sparta – a stylish, well thought out machine. It forces you to pedal, which is good exercise. It's inconspicuous and the power control is intuitive for a cyclist. It greatly increases your endurance, and makes it possible to arrive fresh, even after a fair journey. It will get you up fair hills, but only slowly – flying down the other side is exhilarating!

For a petrol-head car driver, the sheer power of the 'twist and go' eZee bike will appeal – you can be lazy if you wish and the bike will still drag you along at a respectable speed. The eZee also did far better on the hills – no worries at all even on steeper gradients. Styling-wise it's far more 'in your face'; it looks out of the ordinary and the motor roars, but hey – if you've got it, flaunt it! Endurance-wise I thought 15 miles of constant hills (either up or down) was pretty respectable. Obviously more flat would increase that dramatically.

Surprisingly both of these bikes had about the same range over the same terrain – I had put in a lot more energy myself with the Sparta, so had expected the endurance to be a lot higher. On both bikes keep an eye on your battery level. It's harder to predict on the eZee bike, although the percentage level on the Sparta was not always 100% accurate. If your battery dies it's hard work pedalling, although not impossible – useful in emergencies. Also be prepared for lots of interest: I had people stopping me in the street to ask about the bikes (mainly the more obvious eZee). This is good from a pastoral point of view but could become time-consuming!

The BionX system is a great idea and works well. The power control is good, forcing you to pedal a little, keeping you fit and the lighter weight means that the power advantage is not lost on hills. Regenerative braking increases your endurance. The idea of fixing this unit to your own favourite bike is appealing, and should save a lot in cost, but you'd need to be an expert to lace up the spokes yourself from the BionX hub – better to leave this bit to the bike shop. For anonymity I would paint the BionX unit the same colour as my bike so less attention was drawn to it.

And the last big question – did they make me leave



the car at home? Well, yes – I didn't get my car out of the garage during the three weeks of the trials, quite an achievement. That had to have a good effect on my 'carbon footprint'. I even found myself getting out and about in the parish more because of the sheer fun and convenience of using the electric bikes! From a fitness point of view I was getting far more gentle exercise than my usual combination of bike and car as the power assistance gave me confidence to undertake much longer trips by bike.

I was impressed by all three bikes. At last electric bikes seem to be growing up from a 'cranky idea' to a viable means of transport, even if you live somewhere where cycling conditions are far from ideal. So this vicar will certainly be asking for more 'e' in future!

**Chris Stebbing**

### Thanks to:

- **H Drakes** (01223 363468) in Cambridge for supplying the Sparta Ion. They also have a very interesting range of Raleigh and Koga Miyata bikes.
- **50cycles** (Tel 01509 266656 or see [www.50cycles.com](http://www.50cycles.com)) for sending the Ezee Forte
- **Airimal Designs** (Tel 01223 523973 or see [www.airimal.com](http://www.airimal.com)) for the Joey Move
- **BikeTec** ([www.biketec.ch](http://www.biketec.ch)) from Switzerland for loan of the Flyer during the SPEZI show – a very interesting chance to ride a performance bike developed for that country's more permissive electric bike regulations.