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Spring 2021



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know about Pedelects,
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and much more

Gawthwaite Good to Go

Conservation in the Lake
District National Park



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- ★ **Group Profile:** Mo Rapley explains what SW Wales has been up to
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Home by Seven

Exclusive reader offer
on Steph Jeavons'
critically acclaimed
travel book

Lockdown Lovelies

What went on behind
closed doors in 2020

Used & Abused

The ubiquitous Honda XR250R &
Kawasaki KDX220R



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ELECTRIC

Avenues



Following **Mike Wain's** article about trail riding on a pedelec in the last issue and reports from dealers that sales of electrically-powered bicycles have 'gone through the roof' during lockdown, **Paul 'Blez' Blezard** looks back on 30 years of e-bike development, and the key changes in the law, and ponders the future for unlicensed electric vehicles of all kinds

In August 1983 a whole new world of licence-free mechanical vehicular assistance opened up, thanks to the advent of a new set of Electrically Assisted Pedal Cycle (EAPC) regulations. It came about, reportedly, due to lobbying from manufacturers such as Raleigh, who wanted to sell electric bicycles. From then on, two- and three-wheeled cycles could be fitted with electric motors so long as they weighed no more than 40kg (60kg for trikes) and the motors gave no more than 200 watts of continuous power (250 watts for trikes) and didn't propel you beyond 15mph. And you didn't even have to be 16 to ride one. The minimum age was (and remains) 14. No licence, insurance, registration or helmet required.

The Pioneering Yamaha PAS

Yamaha experimented with fitting a 25cc petrol engine to a bicycle in 1973 but by the late 1980s had switched to electricity and designed their Power Assist System (hence PAS), launched on the market in 1993. Unlike most early electric bikes (and many still produced today), the motor was not in the rear wheel hub, but in the middle of the frame, driving the front sprocket or 'mid-drive' as it's called. It was first fitted with a nickel-

cadmium (NiCad) battery but Yamaha soon moved on to nickel-metal hydride (NiMH) batteries, as used by General Motors in their famous EV1 electric car.

By 2008 Yamaha had sold a million (yes, a million) PAS-equipped pedelecs in Japan and the range had grown to five models, although ▶

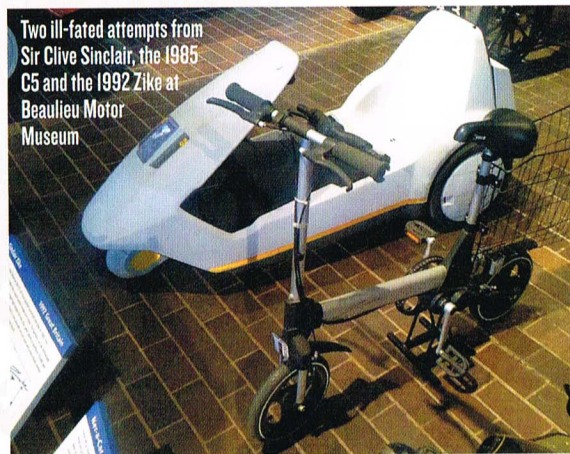


First launched in 1993, the PAS was a million-seller in Japan alone by 2008!

Fantic Motor have their own range of off-road biased e-bikes

Main picture: Fantic Motor UK

MANY OF THE MAINSTREAM CAR AND MOTORCYCLE MANUFACTURERS ARE NOW MARKETING THEIR OWN PEDELECS



Two ill-fated attempts from Sir Clive Sinclair, the 1985 C5 and the 1992 Zike at Beaulieu Motor Museum



The Powabyke complete with weighty lead-acid battery



A GoCycle by the Albert Memorial in Kensington Gardens after the 2010 EcoRally



A rare 1990s Honda Racoon Comp folding pedelec in Dobbies of Coulsden

Chinese had built and sold 21 million electric bikes (mostly with lead acid batteries) just for their home market, and had exported 580,000 more.

In the summer of 2010 there were two big electric vehicle events in central London. At the first, the EcoCar event in Kensington Gardens, I encountered my first GoCycle pedelec. A brand new and futuristic small-wheeled and lightweight machine, it was designed by former McLaren Cars engineer Richard Thorpe. It was the first injection-moulded magnesium alloy bicycle in history and could be quickly dismantled (rather than folded) and put into a bag or special suitcase. The first ones proved a bit fragile, but 10 years on the GoCycle



ELECTRIC AVENUES

A hub drive Batribike Delta eMTB designed in Denmark, built in Bulgaria



Sue Coulson of Batribike with the company's then-new, British-built, full suspension Storm eMTB

brand has matured into a reliable and trendy £4,000 top-seller, now with quick-folding, carbon fibre and many other options. It also has a smidge of suspension at both ends and I'd love to try one on some trails.

There was also a hydrogen-powered bicycle at the EcoCar event, the only one I've ever seen, let alone ridden. The other memorable powered but unregistered machine on view was a big electric trike 'pick-up' called a Cycles Maximus, which had been used in many of the non-road sections of Eddie Izzard's multi-marathon Comic Relief fund-raising adventure

the Brace PAS-L, with lithium-ion (Li-ion) battery, didn't arrive until 2010. To date, Yamaha have sold more than two million pedelecs in Japan alone, and four million PAS motors worldwide.

The Power and the Glory

I first visited an electric bicycle shop on an industrial estate in Guildford in 2006. There were several lithium-batteried machines available – men's, ladies', a small-wheel folder, but no mountain bikes, or 'eMTBs' as they are now known. By the end of 2008 I'd become seriously interested in anything with an electric motor and two wheels and made a pilgrimage to the first electric TT in June 2009, where I discovered a great collection of weird machines and wonderful characters.

A couple of weeks after that 2009 TT I got the chance to ride an old-style lead-batteried Powabyke around the city of Bath. The Powabyke company was based in Bath and had already been selling pedelecs for several years. The traditional old step-thru machine worked okay but was really heavy and the contrast with their latest model was striking – it looked and felt like a conventional road pushbike, and its lithium battery was the size and shape of a cyclist's drinks bottle. I was also amazed to discover that in 2008 the

the year before. I can't remember exactly how powerful the hub motor was but it was a lot more than 250 watts!

In October 2010 I went to my first bicycle show, at Earl's Court, where there were several makes of pedelec on display, from tiny folders to massive cargo e-bikes, and an indoor track to try them on. That was where I first met several pedelec-selling members of the British Electric Bicycle Association (BEBA), newly formed in response to the fact that the rather conservative Bicycle Association had given them 'the bum's rush'. Sue Coulson of Batribike recently recalled that by 2009 only their cheapest model still had a lead-acid battery – everything else was lithium-based. Batribike was also one of several pedelec importers that had a stand at the (motorcycle) Trade Expo in early 2011, where I helped to run the show's first Electric Zone, complete with a small riding area.

On the Roads

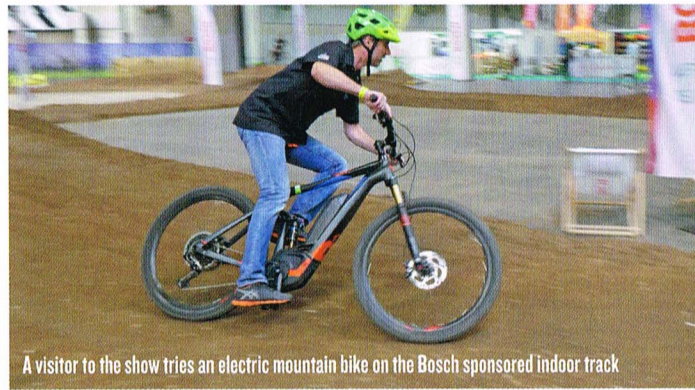
I started riding pedelecs regularly in the spring of 2010, starting with a Wisper folder that was kindly lent to me for long-term testing by Wisper MD David Miall, another BEBA member. I rode it all over my local territory of southwest London, in Richmond and Bushy Parks and along the Thameside cycle/foot-



Adam Wolfe of Wisper puts the new Wisper eMTB through its paces at the 2017 Cycle Show



The JuicyBike Compact Click well-laden after a shopping expedition to Aldi in Feltham



A visitor to the show tries an electric mountain bike on the Bosch sponsored indoor track

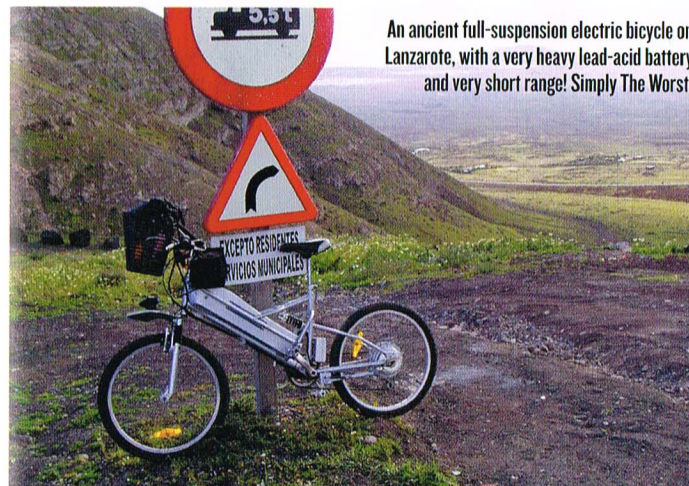


The way to the pub is on the right. Left, a FWD & foldable Wisper and a Juicybike Peak on a Surrey bridleway near Hascombe

JuicyBike had a motorcycle-style but half-length twistgrip throttle that could be turned on and off with a button, in addition to the crank sensor. The Wisper just had the crank sensor, in the European style, of which more anon.

In the spring of 2011 I returned to 'Clean Week', a green vehicle event at the Zolder circuit in Belgium, which I'd been to the year before, to ride the Mavizen electric racebike. The big difference in 2011 was that the organisers had set out a spacious pedelec test track, complete with a small artificial 'hill'

Paul Blezard on the A2B Metro near Teddington Lock



An ancient full-suspension electric bicycle on Lanzarote, with a very heavy lead-acid battery and very short range! Simply The Worst!

on which anyone could try an amazing selection of electric bicycles. There was everything from long, low cruisers to a new electric version of the old French Velosolex moped, with a fake engine over the front wheel. There was also a carbon-framed machine called a 'Black Trail', which, if switched to de-restricted mode, was supposed to be capable of 100kph. It also cost £50,000! Ten years later, it's still by far the most expensive device with pedals I've ever ridden. And ironically, bearing in mind its name, it had no suspension whatsoever, front or rear.



The £50,000, 100kph capable Black Trail on the pedelec test track at Zolder

The first pedelec with both front and rear suspension which I rode any distance was an A2B Metro, which was a quirky German beast, to say the least and nothing like a mountain bike. Originally designed as a hub-drive 28mph moped, it was downgraded to pedelec status by the addition of pedals and chain, plus a restrictor. At 40kg it was right on the pedelec weight limit and I nearly gave myself a hernia carrying it down a flight of railway station steps. (Remember, folks, pedelecs – like bicycles – travel for free on trains!) It was noticeably more powerful than both the Wisper and the JuicyBike, which was great when going uphill, but the restrictor made it frustrating to ride on the flat. It would cruise easily at 15mph, but if you wanted to go any faster by pedalling harder, it felt as if it was fighting against you, that wasn't the case with the Wisper or JuicyBike.

However, after more than a year riding it in standard trim, I got it de-restricted, which made the bike much better all-round. It still only went up to about 24mph, but the 'fighting against you' sensation was gone. Of course, going faster meant it got through the 'juice' quicker, and, combined with a misleading battery gauge, I once found myself with a completely flat battery eight miles from home. However, I could actually still pedal along at

Ducati's new TK-DJRR e-enduro, a snip at £7,290!



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www.gov.uk/electric-bike-rules
The motor should have a maximum power output of more than 250 watts if it's a bicycle or 250 watts if it's a tandem or bicycle.

an indicated 12mph, so it wasn't the end of the world, which is one big advantage pedelecs will always have over stand-up electric scooters and any other pedal-free mode of transport.

Pedelecs A-Gogo and Serious eMTBs

The dramatic change in the popularity of pedelecs in general and the development of electric mountain bikes in particular can be gauged by my experiences of going to the NEC Cycle Show five times in a row, from 2013 to 2017. In 2013, there was a good (tarmac) outdoor test track, complete with artificial 'hill' for free test rides of pedelecs, but no electric bikes were allowed on the much more entertaining mile-long mountain bike course through the woods. There was also one forlorn chap still selling Thompson pedelecs limited to the old UK EAPC power limit of 200 watts, complete with a big sign declaring '250w electric bicycles are ILLEGAL in UK'.

Unfortunately for him, there were more than a dozen other stands all selling pedelecs with 250 watts of continuous power and a maximum assisted speed of 25kph(15.5mph), which were the EU pedelec limits. Strictly speaking, he had a point, but in the real world, the relevant British powers-that-be had made



Top, the 30k M55 Terminus and below, the 15k Riviera



The KTM Marlin Race hardtail, part of a now extensive range of KTM eMTBs and roadbikes

it clear that no one would be prosecuted for selling pedelecs that complied with the EU regs. (In reality, I've never heard of anyone being prosecuted for selling a pedelec that doesn't comply with EU regs ... nor of anyone being prosecuted for riding one either!) BMW launched its own £2,500 pedelec at that 2013 show too, although it wouldn't surprise me if you'd never heard of it.

On the Haibike stand, alongside the full-suspension X-duro electric mountain bike, the Accell-owned company had put a 45kph speed-pedelec class, drop-handlebar road machine on display, complete with small



ELECTRIC AVENUES

This pic: Haibike's £13,000 Full Carbon Ultimate at the 2015 Cycle Show.



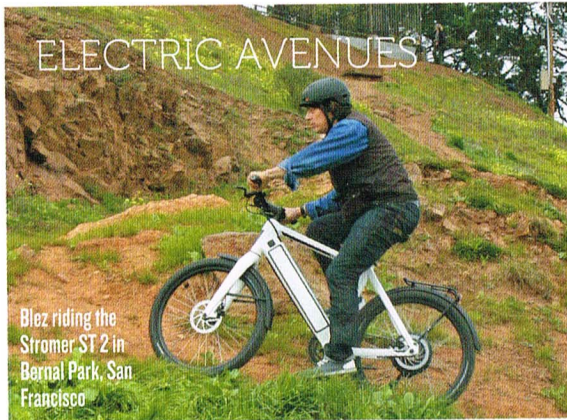
These Stealth bikes look amazing, but sadly the specifications displayed on the wall of the stand put them firmly in the illegal for road use territory

number plate and single mirror as required by Netherlandish and German regs for the class, which does not exist anywhere else in the EU!

On the KTM stand, only two of the 20-odd machines on display were pedelecs, both road-oriented, and I had to look in the catalogue to see the Austrian company's full-suspension eMTB.

By 2015 things had moved on a bit. This time there were more than 20 different electric-only stands at the NEC show and more electric KTMs than you could shake a stick at, including at least half a dozen different KTM eMTBs. Haibike had a full-carbon electric mountain bike on display, priced at £13,000, and a Yamaha-powered S-Duro eMTB with really chunky fat tyres. I was also delighted to be able to have a ride on a ridiculously cheap Chinese-built Xionying folding mountain bike because I've always fancied a really robust full-suspension but folding eMTB – but probably not that one.

By 2016 you could tell that electric mountain bikes were really taking off. The NEC show organisers built a serious indoor track solely for people to try out eMTBs. It had a properly steep climb and descent and some serious 'wall of death' wooden berms for those bold enough to ride them. There were also two stands – ARCC and Cytronex –

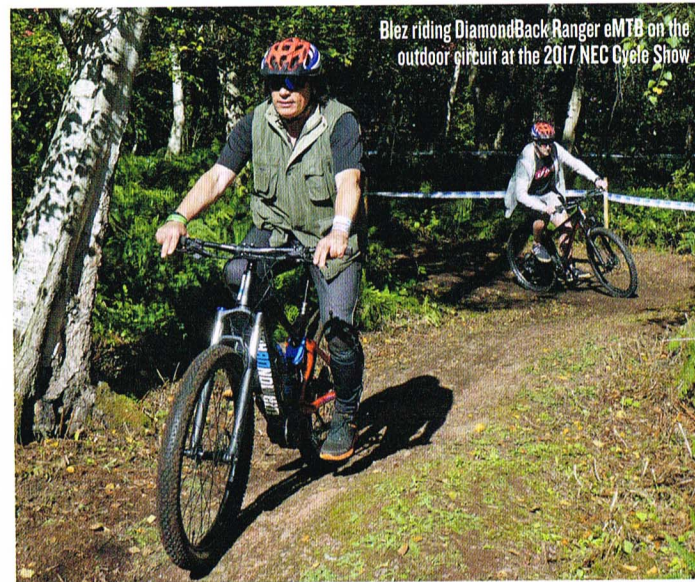


offering sophisticated front wheel drive conversion kits for bog-standard pushbikes. I've tried ARCC conversions on both a Brompton folder and a Moulton, and preferred the latter. The full-size ARCC Cinelli Mystic only weighs 11kg.

A motorcycling friend and his wife both have Cytronex conversions to 25-year-old pushbikes, and love them.

Finally, at the 2017 NEC show it was possible to take an electric mountain bike around the woodland outdoor course as well as on the indoor track, now sponsored by Bosch. I tried several eMTBs in the woods, including the new full carbon Wisper and a Diamondback Ranger, and several more on the indoor track where there were half a dozen makes to choose from.

In the real world, I think you're extremely unlikely to be prosecuted for riding a de-restricted 250 watt pedelec, or an 'illegal' one rated at 350 or even 500 watts, provided you keep a low profile on both road and trail,



and ride with sensible consideration for others. Personally, I'd be nervous about riding a full-power 40mph Bultaco Brinco without number plate or registration even on a tarmac road or BOAT, let alone a bridleway. But I know people who do, and I'm told that the price of second-hand Brincos is now actually higher than the new price before their production ceased

It's worth remembering the unfortunate story of the cyclist who killed a jaywalking pedestrian in London, and was severely prosecuted for riding his 'fixie' with no front brake. No motors involved at all. I wouldn't want to be the person who ran down a kamikaze rambler with a Brinco on a bridleway, let alone a footpath. As for a 50mph Stealth or a 60mph BlackTrail ... forget it!

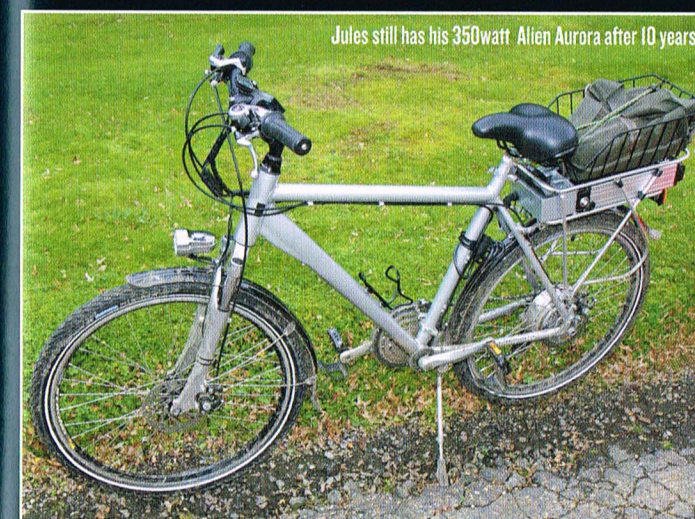
When it comes to more mildly illegal e-bikes, I guess, to distort the words of Clint Eastwood as Dirty Harry, you have to ask yourself one question, e-pedaller, "Do you feel lucky?" ■

Trail Riding Pedelec Owners

Jules

The first serious motorcyclist I knew who actually bought a pedelec was my friend Jules – he lives in Hertfordshire and he's also got pushbikes, maxiscooters and sports motorcycles. I still have the email he sent me about it, back in 2010, and it's instructive:

"I bought the Alien Aurora, illegal e-bike; 350 watts, £950. It's a hoot! It's also classically flawed due to Chinese lack of quality control. All sorts of minor niggles needed fixing from out-of-round wheels to loose bottom brackets to joke pedals. Even the battery had one unsupported module that broke its connection. I've done a few rides on footpaths, bridleways, BOATs and RUPPs around here. The one big problem is the weight. Kissing gates are OK as long as you can get through them on the back wheel but stiles and gates are seriously difficult. The other thing to remember is that this is emphatically not an enduro bike. Popping a wheelie over tree roots is out. And trying to find a good compromise between rolling resistance road tyres (at high PSI) and grippy off-road tyres is difficult. The 36V 10ah battery is giving me 20 to 40 miles of range depending on how much assist I use, how fast I want to go and how much pedal effort I add. It's got a 3-position mode switch, which is actually more like a minimum speed cruise control. Low=11mph, Med=16mph, High=21mph. In Low, no matter how hard the hill, it will power up it at 10mph or so. In Med, I can keep up 15mph on the road indefinitely, regardless of normal gradients. So really it's done exactly what I wanted. It's added 5–10 miles to how far I can explore from home on a Sunday afternoon.



I can get up hills that were a serious struggle before. And I get home feeling tired rather than exhausted."

I had a good ride on the Alien a couple of months later, and really enjoyed it. It was great to have the extra five or six mph above the legal 15mph of the Wisper and I certainly didn't feel like a criminal for using it.

Ten years on, Jules still has the Aurora. He's had to replace the original lithium battery (£200 from Hong Kong) and admits that the whole bike is pretty much worn out but it still works. Meanwhile, to put his 'illegal behaviour' in perspective, he tells me that a local lad has been ripping around his Hertfordshire town for months on a completely illegal, unregistered Sur-Ron electric trail bike with no number plate and no helmet – and apparently, no interest from the rozzers! (I have it on good authority that no fewer than 450 Sur-Rons were sold in January 2021 alone, most of them of the non-homologated variety 'for off-road use only'.)

Alan Kind and his Cannondale at Salters' Nick, Northumberland



Alan Kind

Alan Kind has been motorcycle trail riding in the north-east since the 1970s and been a tireless campaigner for vehicular rights of way for over 40 years. He was actually the first person I had ever heard of who went trail riding on a traditional leg-only-powered mountain bike, way back in the 1980s, but he's a relatively recent convert to the joys of electric assistance.

Alan told me, "We – the local TRF of my generation – have been doing quite serious eMTB trail riding for a couple of years now; ▶

ELECTRIC AVENUES



Ken Canham for a bit longer than me. I started with a Bosch-powered Cannondale Neo that cost £2,400 (discounted from £3K), but it suffered two motor failures in 650 miles. In the end I got my money back via the VISA card. It had 29in wheels, and a very stable platform, but was not exactly flickable.

"By the time I knew I was getting my money back we were into lockdown, but I happened on a Decathlon 'Rock Rider'; 27.5in rims, Brose motor, and very well-specced for £1,750. I have no hesitation in recommending it (so far!). It's standard and road-legal. The first thing I did on getting the Cannondale was to buy a hefty Giro helmet. You could have a big accident, tangled up in 50lbs of e-bike, and it is not the out-and-out speed, but the relentless progress that you have to watch. Second thing required was to get decent third party insurance.

"Fun? Superb. Proper trail bike? Well, they do things like overgrown and rutted bridleways brilliantly. On that terrain they are what pushbike MTBs claimed to be, but never were, really. Hills? There's hardly anything you cannot climb, as long as you're prepared to burn the amps. I bought a proper e-bike car rack and we tend to go to places where we can do a reasonably compact zig-zag circuit.

"However, they are not yet mature technologically. The motors/systems are very vulnerable to water. Ken Canham has learned the skills of fitting new bearings quite regularly to Scott/Bosch (which I reckon came out of the

same factory as the Cannondale) and the ordinary maintenance regime is hard. Chains, cleaning brakes ... In our core group I think every bike has had motor/controller issues that require a trip to the (frequently crap) dealer. There's a world of difference between the north-east and poncing about on warm chalk downlands. I would like to try the Ridgeway, say Streatley westwards, either carrying a charger or with a car parked at the other end.

"I also find the thing ideal for local fun and exercise. I ride it with just enough assistance to stop the heart rate spiking to 300, and the knees disintegrating. I reckon you could do 60 miles, with rigour about switching the power down. My 'gravel' pushbike has hardly been out for the last year, not least because the muscle groups used seem to be different. A chum in Lancashire got the same Decathlon eMTB before me and says he can do an 80-miler on mixed going.

"In terms of access, the eMTB is now my 'datum of sufficient repair' on a trail. Can I get along reasonably? We have dreadful 4x4 damage issues up here now (and motorcycles are not totally innocent)."

'Jezza' – The Cotswolds

My friend Jezza is a professional photographer and IT guru-turned-university lecturer. He was the first person I knew who splashed the cash on a full-suspension electric mountain bike, back in 2015. He plumped for a Yamaha-pow-



Jezza and his Haibike taking the advice and dismounting for the steep slope!



Jezza's Haibike fits comfortably in the back of his VW Estate

ered, mid-drive Haibike SDuro AllMTN 6 rather than the alternative Bosch-motored model. The Yamaha option was £500 cheaper, torquier, and (whisper it quietly) easier to de-restrict. The RRP was £3,200 but he got his for £2,800 as part of a deal that also involved getting his then-girlfriend her own eMTB. He was based in Taunton at the time and what he loved about it was that he didn't need to use his car to get out into the Quantocks. "I could just ride the Haibike up into the hills, ride around, and then ride back to Taunton. It got me off the sofa and got me fit, too."

However, he did get abuse from sweating, purist mountain bikers as he passed them going uphill. "They used to call me a cheat, and worse! I think that's changed now as so many of them have actually tried an electric bike and realise how much fun it is." The most unsatisfactory aspect of his Haibike was the 15mph cut-out. Just like my own experience with the standard A2B Metro, he recalled that "It was like hitting a wall of wind". That was one of the main reasons he bought a 'dongle' for £150 to de-restrict it. The other thing he changed was the standard tyres, on which he didn't feel safe when hurtling downhill on tarmac.

I had a good ride on Jezza's Haibike when he brought it to London (in his estate car – no rack required, he just took the quick-release front wheel out and chucked it in the back of his VW). We did a lap of the Richmond Park perimeter track together, with him riding my humble but practical (and completely legal) JuicyBike folder, which is so old it still has a twistgrip throttle. I really liked the Haibike and the full suspension felt luxurious. As with Jules's 'illegal Alien', riding the de-restricted Haibike didn't make me feel like a criminal. As it turned out, Jezza sold the machine when his Somerset relationship ended and he moved to the Cotswolds – but he removed the dongle before parting with it.

John Rushworth, Isle of Bute, Scotland

Some Trail readers may remember John Rushworth from the days when he used to write articles for Trail Bike & Enduro magazine. He had an HRC XR400, which he used to ride and write about in both supermoto and trail guise. He still rides motorcycles today and now has a Honda CB500X.

I take some responsibility for 'turning him on' to the joys of electric vehicles about seven years ago; being the practical person he is, John's first electric project was to replace the diesel engine in his 26ft sailing boat with a Lynch electric motor. John is even older than me and the last time I saw him 'in the flesh', back in 2015, his knee was giving him so much 'gyp' he was struggling to walk. An operation improved matters and as part of his recuperation JR bought himself a Scott E-Aspect 720 hardtail eMTB for 'about £2,000'. However, when riding out with the local serious mountain bikers he was getting shaken about so much he decided that he had to have full suspension, so in 2017 he traded in the Scott for a second-hand 2015 Moustache Samedi 27/9 FS (full suspension).

Last summer John got a bit carried away and bought an ex-demo 2019 Cube Stereo Hybrid 160 Actionteam 500 27.5 with Fox suspension. He describes it as 'comfortable and forgiving, but not a downhill bike', by which he means 'not suitable for racing downhill like a lunatic'. However, upon retirement last autumn he realised that he only needed one trail-capable electric bike, and so decided to keep the Moustache and sold the £5K Cube to a dealer. John's partner Cait has a hardtail Moustache Samedi 27 Xroad with a suspension seat, which the manufacturers modestly describe as 'the bike that can do it all – it combines the capabilities of an urban bike and an MTB'.



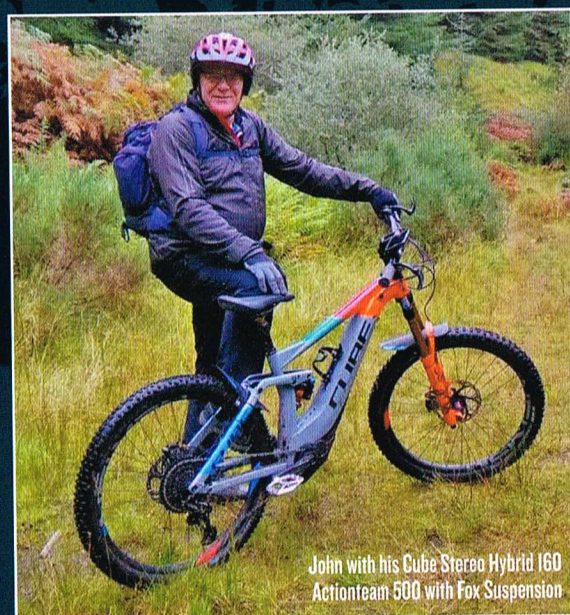
John Rushworth's first eMTB was a Scott E-Aspect hardtail, but the harsh ride prompted him to go full-suspension

ELECTRIC AVENUES

John found the full-suspension Moustache Samedi 27/9 FS a far comfier option than the hardtail Scott E-Aspect



John and Cait regularly ride around the scenic island of Bute, but also take their eMTBs to the mainland for a bit of variety. As mentioned in Carla McKenzie's JOGLE tale in the Winter 2020 issue, rights of way for motor vehicles don't exist in Scotland in the same way that they do in England and Wales – byways legally open to all traffic are very few and far between. In contrast, the situation for pedestrians and cyclists – including EAPC riders – is actually much better in Scotland and, as John says, "I can ride pretty much anywhere I like, within reason". He admits that in an ideal world it would be nice to be able to do 20mph but he's happy to keep his Moustache strictly EAPC-legal at a maximum of 250 watts and 15.5mph. Besides, it's been therapeutic: "My knee was very painful after the cartilage operation and I could barely walk but in time the electric bike helped to heal it, by altering the assistance level to match my recovery. Had it been a normal pushbike I might have done more damage."



John with his Cube Stereo Hybrid 160 Actionteam 500 with Fox Suspension

James Higgs, Wiltshire

As a TRF stalwart James Higgs, or 'Jimmy Kawasaki' to use his Facebook moniker, should need no introduction to readers of Trail. James has already appeared in these pages riding his KLR 650, his CRF 250L and his Serow but he is now the proud owner of not one but two Kalkhoff Agattu pedelecs as well. He bought the first one, an ancient 2010

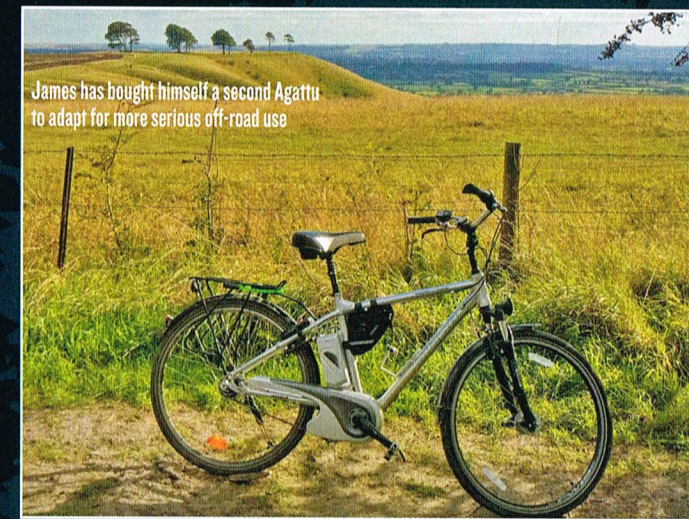
James Higgs selfie with his Kalkhoff



model, for the princely sum of £360 from Facebook Marketplace last summer. He told me, "The range on the old, OEM 10ah battery was only 20 miles on low assist or 12 on full assist, so I replaced it with a £450 24ah battery, which gives me 70 miles on low assist or 35 on full. I geared it up for optimum speed on the flat, and when it was warm I was commuting 19 miles every day plus one or two longer leisure rides – nothing too structured, but I was doing 150-200 miles per week. I lost two stone and feel fitter as a result. I ride back roads, cycle tracks and gravel/firm dirt ways."

Last November James bought the second Agattu for £450 from eBay, with two batteries (one 10ah, one 18ah). He says, "It's a newer 2014 model but has the same 26v Panasonic motor, and has clearly had much less use." He is attempting to make it suitable for more gnarly terrain. "It's a work in progress, but I have geared it down, removed its rear rack/road kit and fitted dirt tyres. I cut and welded two sprockets together in order to make a rear sprocket larger than what was commercially available – to hell with gear

James has bought himself a second Agattu to adapt for more serious off-road use



ratios!" Note the price of that big battery – a hundred quid more than the whole second-hand bike. For a standard-sized 10 or 12ah lithium replacement battery, £300 is normal, while the cheapest Chinese pedelecs can be bought for £5-600 brand new, complete with a new battery – but you wouldn't want to ride a taxing trail on one! ■

Legal Summary

August 1983: Electrically Assisted Pedal Cycle (EAPC) class created in Great Britain (but not in Northern Ireland). Minimum age: 14; maximum assisted speed: 15mph; max power: 200 watts continuous.

January 2016: UK pedelec regulations officially align with those of the EU: 250 watts of continuous power and maximum assisted speed of 15.5mph (25kph). The only downside is that moped-style twistgrip throttles are no longer allowed to be sold on a new machine. A 4mph 'walk alongside' button is allowed though. And owners are still allowed to fit a throttle post-purchase if they want to. (A twistgrip throttle definitely helps take-off on a steep, slippery bridleway slope, rather than having to crank a pedal round to activate the sensor.)

June 2016: UK citizens narrowly vote in favour of Brexit. In theory, we could now change our regulations to anything we like!

May 2020: Northern Ireland finally falls in line with the rest of the UK (and Eire) and no longer considers a pedelec to be a moped requiring registration, licence and insurance, and a motorcycle crash helmet to be worn. It's only taken 37 years.

The e-scooters are coming. Legally. Sort-of!

December 2020: UK government allows trials of stand-up electric scooters in a few areas. They can only be hired, and users must have a full car licence to do so. Use of personal stand-up electric scooters, e-skateboards, Segways, e-unicycles and anything else lacking pedals by which it can be propelled, remains strictly illegal. However, anyone with eyes to see knows that the citizens of the UK have ignored the law in their hundreds of thousands and ride personal electric scooters willy-nilly wherever they flipping-well like. Some have been confiscated by police in a few areas but they only represent a tiny

Blez in action on an electric scooter. Any users should technically have a full driving licence to be legal



fraction of the proportion in regular use.

A cautionary tale: last December, a 20-year-old woman was banned from driving (all motor vehicles) for two years after being caught riding a hired, 12.5mph Beryl electric scooter in Newport, Isle of Wight, while three times over the drink-drive limit. She was also given a community order of 12 months and ordered to carry out 40 hours of unpaid work. To quote the BBC South website, "Magistrates said the e-scooter was classed as a 'motor vehicle', the same as a moped, the

same as a bus."

Meanwhile, there are rumours that the powers-that-be are considering allowing the return of the twistgrip throttle to new UK pedelecs for the benefit of those too old and/or decrepit to pedal comfortably.