

# The West Surrey Cyclist



**July – September  
2015**

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## WEST SURREY CTC 2015

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## WHAT WE ARE

CTC is the national cycling charity. It is the oldest and largest cycling body in the UK, promotes all forms of cycling, and has championed the cause of cycling for well over a century. Its network of local groups, of which West Surrey CTC is one, has 70,000 members. Membership includes third-party insurance, a cycling-related legal helpline, and a bi-monthly national magazine.

**CTC headquarters:** Parklands, Railton Road, Guildford GU2 9JX.  
Phone 0844 736 8450.

**CTC website:** [www.ctc.org.uk](http://www.ctc.org.uk)

**West Surrey CTC website:** <http://westsurreyctc.co.uk/>

## DATES FOR YOUR DIARY

**Wednesday 8th July:** Charlotteville Guildford Town Centre Races. Road racing in the centre of Guildford. From 6.20pm.

**Saturday 18th July:** CTC AGM. See <http://www.ctc.org.uk/agm> for details.

**Sunday 19th July:** 75 and 100 mile Reliability Rides, option of led ride or route sheets. Recent events have forced a change of both start point and organiser from recent years. **See website nearer the date for details of start and organiser** or be notified by email or by signing up for announcements at <http://westsurreyctc.co.uk/blog/>.

**Saturday 1st & Sunday 2nd August:** Prudential RideLondon events. See <http://www.prudentialridelondon.co.uk/> for details.

**Sunday 16th August:** Tour of the Hills and Tour of the Greensand Hills. Start Shere Village Hall GU5 9HF (TQ074480) at 9:50 and 10:30 respectively, entry fees £8 and £3.50 respectively. For more details of the Tour of the Hills see <http://www.aukweb.net/events/detail/13-356/>.

**Saturday 12th September** (provisional date, not yet confirmed): Cycle Jumble, Ripley Village Hall, 09:00.

**Sunday 13th September:** London stage of The Aviva Tour of Britain. See <http://www.tourofbritain.co.uk> for details.



The West Surrey CTC magazine, *The West Surrey Cyclist*, is produced every quarter. Subscribers to the magazine also receive the rides list.

ANNUAL SUBSCRIPTION FOR PRINTED COPIES OF THE MAGAZINE AND RIDES LIST IS £6. Send a cheque payable to 'West Surrey CTC' to Phil Hamilton, 165 York Road, Woking GU22 7XS.

PDF COPIES OF THE MAGAZINE AND RIDES LIST ARE FREE. Send an email to the editor ([editor@westsurreyctc.co.uk](mailto:editor@westsurreyctc.co.uk)) to be added to the distribution list.

The magazine and rides lists are also available on our website:

<http://westsurreyctc.co.uk/the-club/magazine/>

<http://westsurreyctc.co.uk/rides-and-events/ride-lists-downloads/>

## WELCOME TO OUR WORLD

*There's already far too much of me in this issue, so I'll keep this short.*

*I've recently informed the committee that I intend stepping down as editor at the end of the year, i.e. after producing the Jan-Mar 2016 issue. If the committee decide to persevere with the magazine despite the dwindling interest in contributing to it (the reason why you have an overdose of me this issue) and can find a replacement before the end of the year, then I shall happily relinquish the reins earlier than currently planned.*

*If you want to volunteer your services, contact the committee, but if you first want to know a bit more about what is involved in the job, feel free to contact me. I strongly recommend that you do so sooner rather than later as my winter holiday schedule would guarantee a minimal hand-over if you were to leave it to the last minute.*

## LETTER COLUMN

### Towards 1,000,000 miles



I thought your readers might be interested to hear how our very own, "Mile Eater Mantle" is getting on towards his target of 1,000,000 miles. Russ turned up a little late for the coffee and cake stop at Mytchett Canal centre this morning (*Ed: this was written in late March*) but I just had time to get his latest mileage figures. As of the 31st December 2014 his total carefully recorded mileage since he was a boy of 16, way back in 1952, has reached 943,514. Since his total last year was 15,606, more than the average person does by car, he is on track for the magic million miles. Russ admits that he is slowing down

somewhat! His highest ever annual mileage has been 22,550.

The 300,000 miles club that provided this data and collates it from the log books also publish a "Roll of Honour" that shows the total mileage from their old members. The highest mileage on that list is a mere 916,791.

I didn't get the chance to ask Russ but I wonder if he ever thinks while out on his bike that had he been born across the channel he'd have reached 1,000,000 km long ago and could have retired early. I suspect however that Russ would have gone for the 2,000,000 km if that had been the case.

Best of luck to you with your challenge Russ.

Bob McLeod

### **The real CTC**

West Surrey members that would like to support Chris Jeggo's efforts to keep some semblance of a membership organisation can support him at the upcoming AGM, even if they can't attend. Simply take the ballot form in the latest edition of *Cycle*, fill in the bottom part of the first page to appoint Chris Jeggo as your proxy, and send it to the address given (which isn't the CTC). Chris can then vote on your behalf. And good luck to him, I say.

Paul Holmes

## **TOUR OF THE HILLS – MARSHALS REQUIRED**

### **By John Murdoch**

This year's Tour of the Hills will be on **16th August**. It is West Surrey's premier event of the year, and its reputation continues to grow, thanks to the efficient organization by Don Gray, the superb food provided by Louise Gagnon and her team and, of course, the friendly marshals.

Each is so essential, which means that again I am looking for the support of our members to ensure that all the marshal posts are manned. That does require a large number of volunteers, so please advise me if you are able to help on the day, by contacting me on [johnmatsouthview@btinternet.com](mailto:johnmatsouthview@btinternet.com) or 01276-681131.

Please also indicate if you have any particular preference e.g. location, early or late control etc, and I will try to accommodate you, which obviously is more likely if you get in early.

## **FROM THE ARCHIVES (October-December 2010)**

### **50 MILES A DAY ON INDEXED STEERING by Dane Maslen**

For several years I've been visiting a friend who spends his summers in the Perigord region of the Dordogne, a very scenic area. His old farmhouse is over two miles from the nearest boulangerie, five from the nearest shop and eight from the nearest big town. As I travel down by Eurostar and TGV, I used to be completely dependent on him for transport if I wanted to go shopping unless I went for a lengthy walk.

Taking a bike seemed an obvious solution, but TGVs don't accept undismantled bikes as personal luggage, so in 2003 I bought a folder. I rapidly discovered that however light and easy to carry other people's folders might look, mine most certainly wasn't, probably because it's a cheap one. So cheap indeed that its steering is 'indexed'. Nonetheless the experiment was a success: in addition to using the bike for a few shopping trips during my stay, I also went for a couple of longer rides to enjoy the countryside, discovering in the process that it wasn't quite as gently rolling as it had seemed when I had been walking it!

Having lugged the folded bike across Paris on the Metro the first year, in 2004 I gave my shoulder a rest and cycled from Gare du Nord to Gare de Montparnasse. This was an 'interesting' experience, but it didn't put me off cycling in Paris - and the introduction of cycle lanes has now made the ride across Paris somewhat less fraught - so I've done the same in every subsequent year, though sometimes my itinerary involves changing in Lille, in which case I am spared the hassle of getting across Paris.

I hadn't expected the folder to be suitable for lengthy rides, but I found that I could put up with its twitchy handling, indexed steering and increasingly loose bottom bracket, so I got into the habit of doing a few reasonably long rides each year, the longest being a little over 80 miles. You might well be horrified at the thought of such a distance on a folder, but as far as I was concerned, the only problem was that such rides extended well into the hottest part of the day. Cycling in the morning was definitely much more enjoyable than in the afternoon.

Since 2008 I've made maximum use of the pleasant morning conditions by rising early each day, setting out as quickly as possible, stopping at a local boulangerie to buy pains au chocolat for breakfast (it's a tough job, but

someone's got to do it) and finishing my rides by early afternoon. Averaging about 50 miles a day on roads that are largely devoid of traffic, I've covered about 800 miles each year. The loose bottom bracket continued to make occasional unpleasant noises, but didn't seem to be getting any worse until this year. Thankfully it just about survived.

What, if anything, does this prove? Well, if you're not too fussy about what you ride (and many of you will know that I'm not), then even a cheap folder can open up cycling possibilities, though I'd be the first to admit that lugging a folder around on trains has its problems. Given the limited luggage space provided on British trains, I've only once taken the folder for a trip in the UK. Even on Eurostars and TGVs, which have generous luggage space, I sometimes have to rearrange other people's bags to make room for my folder.

There was one journey when I encountered a serious problem. In 2004 I took the bike to Brittany for a week. It coincided with the Madrid bombings. In a knee-jerk "we must be seen to be doing something, no matter how pointless" reaction SNCF took the large luggage racks at the ends of the TGV carriages out of use. Amazingly my folder managed to fit into the overhead rack (try that on a British train!), but it was overhanging so much that I sat watching it for every second of the journey, convinced that it was about to fall off and brain the poor chap underneath.

## **24 KM PER CHOCOLATINE ON A BROMPTON**

**By Dane Maslen**

Having had its bottom bracket replaced before my 2011 trip to the Dordogne, my old Phillips folding bike managed another couple of years service before spectacularly acquiring an undesired extra fold in its frame in 2013. Time for a new folder! Initially I was attracted to the Bike Friday with its towable case so that my friend would no



Moulin du Pont on the Drôme at Tocane-St-Apre

longer have to pick me up from Angoulême station, but spending 30 minutes reassembling the bike out of the case to cycle across London or Paris and then a further 30 minutes disassembling it back into the case afterwards didn't seem practical, so I gave up on that idea.

After my Phillips' disintegration I had borrowed my friend's ancient 5-speed Brompton for a couple of rides and had found that a good quality 16"-wheeled bike gave as comfortable a ride as a cheap 20"-wheeled one, so after some further dithering I decided that my new folder should be a Brompton. None of the standard models met my requirements, so I ordered a B-spoke Brompton: 6 gears, small chain ring to give lower gearing (29"-88"), high handlebars to permit the more upright posture that I prefer, telescopic seatpost to ensure adequate saddle height, and dynamo lighting to enable me to cycle across London if my return Eurostar were to arrive in the evening. I left this decision dangerously late, but fortunately I received the bike a week or so before my 2014 trip to the Dordogne.

My typical day's cycling hasn't changed since I wrote the article in 2010:



Getting a take-away pizza from l'Olive Noire in Mareuil before facing a further 24 km in the fierce heat of early afternoon

set off before 8am, stop at a convenient boulangerie to buy 3-4 pains au chocolat (also known as 'chocolatines' in this part of France) of which two are for an immediate breakfast and the remainder for elevenses, and do 80 km or so before getting back at about 1pm to have lunch, except on a couple of days when I had a take-away pizza in Mareuil. Alas the boulangerie in Celles, the nearest village, closed a few years ago. It used to be very convenient whenever my ride was heading eastwards, but now I have to pedal all the way to Tocane-St-Apre, Lisle or Bourdeilles (15-19 km away) for my breakfast fix of chocolatines.

The scenery in which I ride is fairly impressive because of the not-so-gently rolling hills. While much of it is farmland (alas I go too early in the year to see the sunflowers in bloom) there are forest and some

attractive rivers: almost every bridge across the Drôme is accompanied by a wonderful view both upstream and downstream. The area is lightly populated, perhaps 20-30 people per km<sup>2</sup>, so the villages tend to be very small. Many do, however, have massive Romanesque churches that were perhaps an appropriate size prior to the decline in population following the mechanisation of agriculture. The commune of Saint-Front-sur-Nizonne, for example, had a population of 300-400 people in the 19th century, but was down to under 100 in the 1970s before recovering to about 150 in the latest census.



12th-century church in St-Front-sur-Nizonne

While the Dordogne can be very warm in late May, it's not always so. Last year I had several wet days and it was so cold during the first week or so that my friend had heating on. This year's trip also started cool (pleasant



Château de Mareuil

for cycling once the initial chilliness of the mornings had passed), warmed up to give a couple of days when I was wilting in the heat by the end of the ride, and then reverted to being merely pleasantly warm. All the while it stayed dry but for light rain one afternoon and heavier rain one night. It was beginning to look as though I might manage 16 consecutive morning rides,

but alas on the day before returning home I awoke to the sound of rain.

Over the course of my 15 rides I averaged a little over 84 km and about 1000 m of ascent, but lest John Murdoch should mistakenly believe that this indicates a new-found desire for hilly routes on my part, I'll point out

that I merely chose where I wanted to go and then went over those hills that got in the way; I did not, unlike some people, choose where I wanted to go so as to maximise the number of hills that got in the way. Overall I covered 1262 km while consuming 53 chokolatines, about 24 km per chokolatine. With each one costing about €0.90 this makes my Brompton not only considerably cheaper but also a lot tastier to run than a car.

## **MONTE CARLO BY BIKE – 2: HEADING SOUTH TO THE MEDITERRANEAN**

**By Derek Tanner**

Day 10 and our breath was freezing on the air as we stuck our head out of the tent. Our objective for the day was the “Eglise de Cycliste” – an essential pilgrimage for any self-respecting cyclist. We were at the gate by 10.30, reading the notice that said “Ouvverte 1500 heures”. Depending on your point of view we either were now four and a half hours late on our plan for the day or had been awarded some free time.

A car pulled up about midday, we had been busy, Anne had her washing out to dry on the handlebars and I was brewing up for lunch. The lady who emerged was from the “Tourist Board” and had come to take some photos for next season's brochures, which she duly did and departed.

Promptly at 3 o'clock Madame arrived, opened up, and pointed out the strictly enforced “no photography policy”. The inside was decorated predominantly with cycling jerseys from the “Tour” and associated memorabilia of their original owners.

I tumbled through the door of the TI in Éauze just as they were closing, to find that the campsite in town was closed. Armed with a street map it didn't take long to find out that this was a popular stop for walkers, being, I seem to remember, somewhere that we passed through on our pilgrimage to Santiago. Luckily the “Henri IV” hotel had rooms, so the credit card came out and we settled in to take advantage of the extensive menu, deep bath, bouncy bed and generous breakfast.

Vic-Fezensac was our coffee stop. The TI phoned ahead to check that the campsite at Marsan was still open – it was! Our overnight stop assured, the days ride gave big open views, a few long climbs, lunch in Nougroulet, a

view of the château at Lavoudons and finally, just as the sun was going down, some nasty sharp grinds into the campsite. It was as dead as a dodo. We found the Gardienne, got the tent up and dinner down just before dark. It is much drier here, the ground is like concrete.

The tent came down dry –for the first time this trip. We had decided that the only practical option from here was to route through the centre of Toulouse. Riding on the main road was wearing with the traffic, using the side roads took us onto roads that Sustrans would have been proud of. So the next time that we crossed the railway line, from where we could see a station, we looked for a train.

Coming out of the railway station in Toulouse, the Canal Midi is right in front of you. A walk around town took a couple of hours, but it was well worth the visit. After lunch the towpath was billiard table smooth. It was an easy 20km to the campsite at Meyde. We got given table and chairs and were soon settled, in the warm evening sun, amongst a collection of GB motor homes.

After an overnight short shower, the morning was muggy. By 0930 we were back spinning along the towpath again. At the “Departement Border” we found a café and tourist centre. The towpath now started deteriorating and we were soon bouncing over tree roots. After 60km, the campsite was closed. It was still relatively early so we decided to press on. The lockside cottage at Bram was still open as we passed and served us an excellent tea and cakes in the late afternoon sun. In good spirits now, another 30km to Carcassonne was not a daunting challenge. The towpath continued to deteriorate and we eventually staggered into the rush hour traffic on the Ring Road, to follow signs to the campsite and soon got the tent up in the secluded walkers area. It promised to be a warm evening but too tired to cook, we headed for the campsite restaurant, finishing with sharing a few beers with an Australian.

The sun seemed to come up early with a vengeance, but this was going to be an R&R day. The bikes were serviced and the washing soon dried, giving us chance of an afternoon tour of the medieval town. Returning to the campsite with fresh food stores it was to be another leisurely meal in the evening sun with a chilled bottle of wine.

It was a chilly Sunday morning, a bit of walking and pushing was needed to get back to the canal without cycling back around the Ring Road. There

were a lot more people using the towpath. After coffee in Trèbes, we should not have been surprised, but without warning one of the front panniers flew off on a particularly rough section and we were both momentarily taking bets as to whether it was going to end up in the canal. (I cannot remember whose bedding was inside). The second time was a bit more worrying as it bounced back and jammed in the front wheel. Time to slow down!

We stopped for afternoon tea in the garden of a very elegant auberge near Homps, before we took to the road for the last 25km to Narbonne. It was fairly busy but not too hilly. The campsite was next to the Toll Booths on the motorway (and took a bit of finding if you had not come that way). It was 7pm before we arrived. Each pitch was provided with “en suite” facilities - (as children we had something very similar at the bottom of our garden – except that it didn’t have a shower or hot water). There were plenty of tents but only about ten people in the bar. The biggest challenge however was the mosquitos, which forced us to eat dinner and breakfast inside the tent.

We were in “tourist country” now and soon found a cycle track which took us through suburbs of holiday villas. The cycle route neatly led us to the campsite at Saint-Pierre la Mer. We picked a pitch shaded under the trees, birds roosting overhead and with a sea view.

We had reached the Mediterranean. We were now well on our way! As we blissfully drifted asleep that night, we hardly realised that the sounds of the sea lapping on the shore was coming from the Autoroute over the hill.

## **UP HILL AND DOWN DALE**

**By Hilary Stephenson**

In line with long-standing tradition, Derek and Anne Tanner once again organised a weekend exploring a new part of the country by bike, or in one case on foot. This year’s base was the village of Giggleswick just outside Settle where Sue had arranged comfortable accommodation in the very welcoming Hartshead Hotel.

We made slow progress initially on the first day’s cycling as we puffed our way up the steep climb through Silverdale, battling against a cold wind also. We were subsequently rewarded with a beautiful descent down

through Littondale. Following the route of last year's Tour de France, we arrived at Kettlewell in time for a much-needed refuelling stop. The scenic ride from Kettlewell down Wharfedale to Grassington was unfortunately marred by drizzle but we still took the time to admire the Linton waterfalls. The group split up mid-afternoon, some heading straight back to Settle whilst the rest of the group visited Malham Cove, one of Yorkshire's best-known geological wonders.

As the forecast was for more persistent rain on Sunday the planned ride was abandoned, giving people the opportunity indulge in some cultural pursuits. Brian and Helen caught the train to Leeds to visit the municipal art gallery but seemed more impressed by an open-air display outside the City Hall of huge aerial photographs of well-known British landmarks. Nick and Marion spent an enjoyable and informative day at the David Hockney gallery in Saltaire where they were very interested to learn about the philanthropist mill-owner Sir Titus Salt whose former mill houses the Hockney collection. Derek and Anne as well as Chris and Lynette headed to Skipton whereas others were content to remain in Settle with its friendly cafés and local museum about the agricultural and industrial history of the area. Some people were determined to get on their bikes though so Roger, David and I did a very pleasant 20-mile loop once the rain had cleared, returning to Settle for a rather late lunch at Ye Old Naked Man Café. That evening we were invited to join in the regular Sunday night pub quiz at our hotel and one of our two teams even managed to win a prize.

We were blessed with dry, pleasantly warm weather on our final day and had a truly memorable ride up the Ribble valley. First stop was near the famous Ribblehead Viaduct on the Settle to Carlisle line, an amazing feat of engineering. We then enjoyed a glorious long descent through picturesque Dentdale following the course of the river until we reached our lunch-stop in the village of Dent with its quaint old cottages and cobbled streets. We certainly needed to boost our energy levels in preparation for the long climb up the rather inappropriately named Deepdale as for us it was more of a Highdale! As usual, Chris was able to find a friendly café for afternoon tea in Ingleton before we headed back to base.

As a Yorkshire lass myself, I was delighted to be back in familiar surroundings and the childhood memories came flooding back. I was pleased to see how many curlews and lapwings there are still in the higher

dales and the almost constant bleating of the lambs throughout our rides was music to my ears. It was reassuring to see that the art of dry-stone walling is still alive and well as most of the walls we passed were in good condition. I was amused at the reaction of the others to some Yorkshire specialities such as fruit cake with Wensleydale cheese as I would never dream of eating fruit cake myself without the accompanying slice of cheese! Sadly nobody was tempted to try curd tart, one of my favourite treats whenever I'm back in Yorkshire.



Lane to Stainforth (photo by Chris Jeggo)

Happily there wasn't a single puncture or other mechanical problem throughout the weekend, let alone any injuries. However, two cyclists did have mishaps on their return journeys and, unbeknown to each other, both spent a few days on different wards in the Airedale Hospital near Keithley. Fortunately Brian soon made a good recovery from his heart problem. Poor Roger has a longer period of recuperation ahead though as he fractured his hip after slipping on a wet path at his sister's house in Ilkley. It just goes to show that there are often fewer risks on the bike than off the bike!

Many thanks to everyone who helped to make it such an enjoyable weekend, and especially to Derek and Anne. I am already looking forward to next year's adventure!

# OCD

**By Bob McLeod**

This is not an article about Obsessive Compulsive Disorder although if you suffer from that it might help in this competition. It can also help in getting you out on a club ride in conditions when sensible people (like our editor) would stay at home and keep dry. *(Ed: a clear case of sucking up to the Editor. I'm sure Bob really wanted to say 'wimps' rather than 'sensible people')*

Like many good things in this life the OCD I am referring to originated in France from the Ordre des Cols Durs. It is simpler than the other height related competition, the AAA points scheme also organised by Audax UK (AUK). All one has to do is record the height of the cols in metres above sea level and accumulate them over your lifetime. The best bit from my perspective is that you can claim back to 1960 when OCD was started, although I'm hoping to bag a few cols this year.

There are of course a few conditions, after all Durs translates as 'hard'. The col must be over 300 metres above sea level and is defined as having higher ground on each side, plus the drainage must be into separate water courses. In addition one can also claim mountain tops like Mount Ventoux which is a true summit. Normally you can only claim a pass once in a day or a maximum of 5 times in a year. But in the case of Ventoux as long as it is by a different route it can be claimed three times. I only know of one person in our club mad (sorry, tough) enough to have done that.

It may be of interest to know that you don't have to be riding your bike, just have it with you - not in the car of course - this rule is primarily for rough stuff routes where it may be too snowy or boulders bar the way.

Might I suggest that you dig through your old cycling trip records to see what cols you have toiled up and add the heights together. You might be surprised just how high you have climbed. If you wish to submit your claims you don't need any proof, just the details of the climb. What could be simpler, it's all done on trust and your total ascent should appear in next winter's copy of Arrivéé.

This information is a précis (another French connection) of an article by Rod Dalitz in Arrivéé, winter 2015. Full details are available here <http://www.aukweb.net/ocd/>.

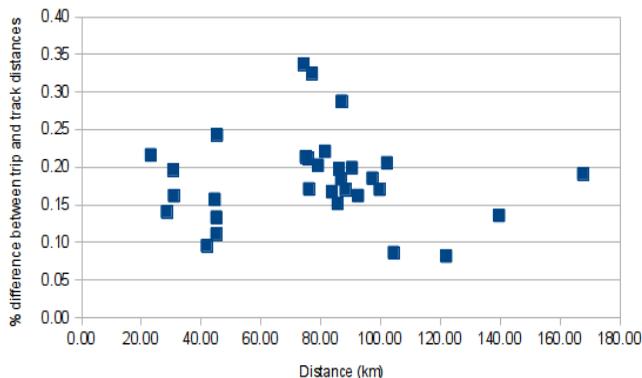
# HOW FAR? - PART 4

By Dane Maslen

In this, my final and somewhat longer than originally intended, article about measuring distances with a GPS (before cheering too loudly, bear in mind that there's *How Fast?* and *How Hilly?* still to come), I'll attempt to estimate how accurately my Garmin Oregon 450t measures distances; other GPS's might be more accurate or less so. First, however, I'll start by reminding you that for most GPS's there will be a trip distance (displayed by the GPS during the journey, calculated from all the position measurements) and a track distance (calculated by the GPS or a website from only those position measurements that were saved in the track file at the end of the journey, possibly with some variation in the calculated distance depending on the calculation method used).

There is a circuit that I ride moderate frequently to gauge my fitness. Consequently I have 11 track files for the route. The distances calculated from these files range from 44.952 km to 45.125 km. A small amount of the variation is probably due to taking slightly different courses round corners and roundabouts, but the bulk of it will be the consequence of random errors in the GPS's measurements of position. A statistical analysis of the results gives an average of 45.06 km and an estimated error on each measurement of 0.05 km, i.e. in the absence of any systematic errors there's a 68% chance that any given measured distance will be within 0.05 km of the true distance. An accuracy of 0.1% for distances of about 50 km would imply 0.05% for those of about 200 km and 0.2% for those of about 12 km.

That looks an impressive accuracy, but bear the 'in the absence of any systematic errors' qualification in mind. I explained in *Part 2* that the track



distance tends to be less than the trip distance, so it would be a good idea to compare the trip and track distances for various rides to see how pronounced this effect is. On 32 rides I have remembered to record the trip distance for

subsequent comparison with the distance calculated from the track file. The diagram on the previous page shows the percentage difference between the trip and track distances plotted against the distance. As you can see, there's typically a difference of about 0.2% (although I haven't studied it methodically, I'm fairly sure that the difference becomes greater for journeys at lower speeds, e.g. when walking), so for any ride longer than about 12 km this systematic error will dominate over the random error that I calculated from the repeated measurements of my 'training' circuit: an estimated random error of 0.05 km on the distance is clearly overoptimistic when the difference between track and trip distances is about 0.09 km. For reasons that I explained in *Part 2* my expectation is that the trip distance is likely to be an overestimate and the track distance an underestimate, but where in between is the real distance?

One other experiment I have been conducting is to compare the measurements from two GPS's, my own Oregon 450t and Peter Hackman's Edge 705. It would, however, be unfair of you to blame Peter entirely for the existence of the next few paragraphs: if Louise hadn't sold him her Edge 800, he wouldn't have been able to lend me the Edge 705.

When I started writing this article there were only seven rides for which I had trustworthy track and trip distances from both the Oregon 450t and the Edge 705 (I'll discuss some untrustworthy ones later). Encouragingly they showed no systematic difference between the measurements from the two GPS's: sometimes it was the Oregon 450t that had reported a greater distance, sometimes it was the Edge 705. The largest absolute discrepancy was 0.06 km on a 120 km ride and the largest percentage discrepancy 0.2% on a 28 km ride, but the average discrepancy across the seven rides was effectively zero.

While writing this article I did a ride of about 110 km at the end of which the discrepancy in the track distance between the two GPS's was 0.22 km while the discrepancy in the trip distance was 0.66 km, i.e. about ten times greater in absolute terms or three times greater in percentage terms than the worst discrepancy I'd seen in the previous seven rides. In fact I'd noticed the discrepancy in trip distance by about half way, so at that stage the percentage discrepancy was about six times greater than previously seen.

After the ride I took a close look at the tracks recorded by the two GPS's and found a very surprising gross error in the Edge 705's determination of my position during the first few minutes of the ride:



Start of ride on 17/06/15 as recorded by Oregon 450t (left) and Edge 705 (right).

The first positional determination by the Edge 705 is in error by over 100m.

The error on the next few positional determinations is almost as bad.

This turns out, however, not to have been responsible for the discrepancy in the distance measurements: the initial track recorded by the Edge 705 is about 0.1 km shorter than that recorded by the Oregon 450t, but by the end of the ride the Edge 705's trip distance was 0.66 km greater than that of the Oregon 450t. I can only speculate on the causes of the discrepancy:

- Reflection of satellite signals off buildings etc can cause a GPS to miscalculate positions. I suspect that this is what was happening to the Edge 705 at the start of the ride. That would tend to imply that the Oregon 450t manages better reception of satellite signals than the Edge 705 and so is less likely to be confused by reflected signals. I suppose it should come as no surprise to discover that a higher-end GPS is likely to give better distance measurements.
- As mentioned in *Part 2*, heavy tree cover considerably degrades a GPS's ability to determine the position accurately. There were certainly sections of heavy tree cover on this ride, though whether more than usual I wouldn't like to say, so maybe that had an effect.
- At one stage I had to change the batteries in my Oregon 450t. Unusually I had the replacement batteries in my shirt pocket rather than in my pannier, so I was able to switch the GPS off and change the batteries as soon as I stopped. I later discovered that 300m or so of the ride immediately prior to stopping was missing from the track file. I



a road, the GPS was 'correcting' the measured position to correspond to the road, but by buffering trackpoints to memory for a while before writing them to the track file, it was able to go back and undo the 'correction' when it turned out to be wrong.



Having remembered that experience, it occurred to me to wonder whether the Edge 705 had a *Lock on Road* feature that was less sophisticated, i.e. one that recorded 'corrected' trackpoints immediately and hence couldn't undo incorrect corrections. I investigated and found that the Edge did indeed have *Lock on Road* and that it was enabled. After I disabled it, trip distances for subsequent rides were, as expected, greater than track distances. And as this example shows,

a subsequent ride through Woking Park produced a recorded track that was much more sensible.

This shows how the distance measured can be in error if the GPS's settings are inappropriate. Having *Lock on Road* enabled is only a good idea if the ride is entirely on-road, in which case the distance measurements might be better than with it disabled, just so long as the GPS can determine the correct road to lock on to: at the start of the ride on 17/06/15 that I discussed earlier it seems likely that the GPS would have locked onto Blackness Lane, so the track would merely have been differently wrong.

Another experience from my early days of using the Oregon 450t suggests another way in which *Lock on Road* could produce an erroneous track even on an on-road ride. There was a fork from which the two roads diverged very slowly. As I rode along one of the roads, I noticed that the GPS was showing me progressing along the other one. Once the roads had diverged sufficiently such that the GPS could no longer maintain this fiction, it redrew my route along the correct road. Thanks to its buffering of trackpoints the track for the ride showed the correct route, but confronted with the same scenario the Edge 705 would presumably have shown the track as going along the wrong road and then cutting through the woods to join the correct road.



accurate to about 0.2% for all but the shortest rides, but the experiences described above indicate that accuracy will often be worse for one of several reasons:

- Inappropriate use of the GPS, e.g. switching off too quickly after stopping or continuing to record during coffee stops (see *Part 3*).
- Inappropriate GPS configuration.
- Poor satellite reception, e.g. heavy tree cover.

Furthermore in *Part 1* I discussed how the method of distance calculation can be important:

- If a program or website uses the haversine formula rather than the Vincenty formula, then depending on the latitude and the direction of travel the calculated distance can be in error by up to 0.5%, though it's less inaccurate at our latitude.
- If the route is hilly enough – probably not relevant on most bike rides, but possibly an issue when walking on steep terrain – the distance calculated from the track file can be significantly in error because no allowance is made for the altitude difference between trackpoints.

I am nonetheless inclined to believe that the distance measured by a GPS for a cycle ride should usually be accurate to 0.5% unless one indulges in some of the more blatant misuse that I described in *Part 3*.



Deadline for next issue: September 12<sup>th</sup> . Get your cycling stories in to the editor now: [editor@westsurreyctc.co.uk](mailto:editor@westsurreyctc.co.uk)

*The editor welcomes contributions of all types, e.g. articles about cycling holidays, anecdotes about events on club rides, letters (serious or humorous) to the editor, product reviews etc. Short items are useful for filling the gaps left by longer articles and are very welcome. If you have photographs that could be used to illustrate your article, feel free to send them too. Whether they are used or not will depend on space constraints. All contributions will be acknowledged when received.*

*Front cover: Your editor's Brompton at the Moulin du Pont, Tocane-Saint-Apre.*