

Field Meeting Report: Centenary excursion to Richmond Park, Kingston Hill and Wimbledon Common

May 28th, 2017

Leaders: Members of the London Geodiversity Partnership in collaboration with the Friends of Richmond Park and the London Natural History Society

By: Diana Clements

Photographs John Lock

This full-day trip celebrated 100 years since the GA Excursion on 19th May 1917 which was written up in the Proceedings of the Geologists' Association. We attempted to re-enact the route as closely as possible and to deliberate on the origin of the gravels as they did on the original trip even though any exposure is now much diminished. The write up will intersperse quotes (in italics) from the original trip with comments from the 2017 re-enactment. During the trip these quotations were read out to the group at the appropriate stops.

EXCURSION TO RICHMOND PARK, KINGSTON HILL AND WIMBLEDON COMMON MAY 19TH, 1917.

(In conjunction with the South London Branch of
the Geographical Association)
REPORT BY C. J. G RIST, M.A., F.R.G.S.,
Director of the Excursion

The high levels of Richmond Park, Kingston Hill, and Wimbledon Common are capped with gravel, and the purpose of the excursion was to examine this gravel at different places with reference to the questions of its age and origin.

The purpose of examining the gravel at different places is not really achievable 100 years on. The 1917 Excursion was able to visit an operating gravel quarry on Kingston Hill and temporary exposures for military operations on Wimbledon Common. The quarry is now a golf course that did not give us permission to bring a large group to visit at midday on a Saturday in May, and the temporary exposures on Wimbledon Common have long since vanished. Nevertheless we were able to see the nature of the gravels on eroded slopes in both the Park and the Common and address the questions of age and origin in light of subsequent research.

A large party assembled at Norbiton Station (L.S.W.R.) at 2:15 p.m. and proceeded at once to the top of the slope just

within the Queen's Road entrance to Richmond Park.

The 2017 repeat began rather earlier at 10:30am from Norbiton Station. The walk was about 12 kilometres (7.5 miles) long and it is difficult to see how the original trip operated within the shortened time although it was pointed out by one of the participants that daylight saving had just come in and the 1917 trip may have wished to take advantage of it. In any case the 1917 party must have walked faster than us to meet their goal before nightfall.

We were also a large party with a total of 36 participants although the majority of them were Friends of Richmond Park and members of the London Natural History Society rather than members of the GA. In the earlier trip members of the GA had combined with members of the Geographical Association (South London Branch).

We made an unscheduled stop at Gallows Pond as John Lock, who has worked in Richmond Park for many years, told us that they had attempted to relocate the pond as it was swamped with *Crassula helmsii* (New Zealand pigmyweed). The geologists amongst us were not the least bit surprised that the original spring had reappeared adjacent to the new pond. Unfortunately one of the naturalists in the group found a small specimen of the offending *Crassula* which she carefully bagged for dustbin disposal at home.

The party walked along the edge of the slope towards Thatched Cottage. Just below it, and near the 100 ft. contour, an exposure of the Claygate Beds was pointed out.

The Claygate Beds exposure is one of very few that are visible within Richmond Park. We examined the

exposure and participants were invited to feel the silty texture typical of the Claygate Beds at the top of the London Clay. The 100 foot contour mentioned in 1917 is at a lower level than predicted for the Claygate Beds and when viewed from above it is clear that the hummocky terrain of the slope is the result of rotational slips. This observation does not seem to have been made in 1917.



Figure 1: Examining the Claygate Beds exposure

We climbed up through the hummocks to the view point where we discussed the overall geology of the area.

Among the constituents of the gravel is a noticeable quantity of Triassic material, brought here from an area now outside the limits of the Thames Basin. The presence of this erratic

material-quartzites, etc.-in the gravels of the Lower Thames valley, according to the usual explanation, is due to fluvio-glacial streams issuing from the Chalky Boulder Clay. This explanation is set out at length in a memoir of the Geological Survey dealing with the drifts of the Thames valley from the climax of the glacial period to recent times; and the gravel on Wimbledon Common is mentioned by way of illustration. The explanation should therefore hold good for the origin of the gravel here. It is assumed that "the Thames Basin had been deeply eroded before its deposition", and "the elevated position of the plateau gravel is due to a subsequent rise of the water to that level during the glacial period "; that "the tumultuous waters which escaped from the edge of the ice-sheet, combined with the streams which flowed from the snow-clad hills to the south, overspread the country far above the pre-glacial river.

En route to the view point, the exposed gully gave us our first opportunity to discuss the nature and origin of the Black Park Gravel. In 1917 the above description was discussed at the quarry that is now the golf course but it seems more appropriate to make our observations here where we could find and handle the pebbles. We found Lower Greensand Chert and vein quartz as described in earlier descriptions of the Black Park Gravel. The chert indicates an origin in the Weald to the south, whilst the nearest vein quartz is today within the granites of southwest



Figure 2: Black Park Gravel at the view point

England, although of course, both could have been reworked. The above description also mentions Triassic Bunter pebbles although none were found on this occasion. These will probably have been brought south from the Midlands in the Anglian ice sheet that did not quite reach as far as south London but were washed into the early gravels as the ice melted. There is still a debate about the origin of the Black Park Gravel within Richmond Park but the suggestion that it is situated at the confluence of the Mole-Wey rivers system from the Weald to the south with the re-routed Thames carrying material from the north seems the most plausible.

The Director, drawing attention to the situation of the ground to be traversed, said they were there on the south-western corner of a dissected plateau. That part of it, locally known as Kingston Hill, extended beyond the confines of the Park through Coombe Woods to the Beverley Brook. Beyond the Beverley, Wimbledon Common and Putney Heath formed a second part. A third, and the smallest of the three, was situated at the Richmond end of the Park, beyond Pen Ponds.

The contour map in the 1917 write-up was reproduced in the leaflet given to participants and illustrates the bisected nature, particularly when coloured. The geology closely follows the contours and the entire plateau area is covered by the Black Park Gravel.

We walked over the plateau towards Ladderstile Gate, passing a small gravel quarry at the edge of the plateau. This was too overgrown to examine the gravels except on the eroded slope back up to the top of the plateau. What we did observe was a dry streamlet on the quarry floor with its origin at the base of the slope at the junction of the

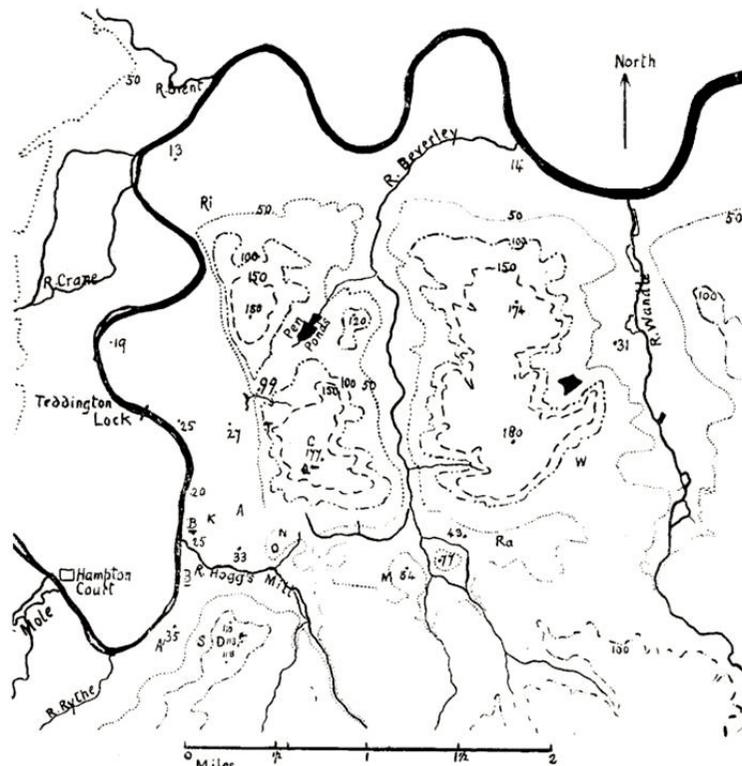


FIG. 10.—THE PLATEAU OF KINGSTON HILL, RICHMOND PARK AND WIMBLEDON COMMON.—C. F. Grist.
 K.—Kingston. M.—Malden. N.—Norbiton. Ra.—Raynes Park.
 Ri.—Richmond. S.—Surbiton. W.—Wimbledon (Railway Stations).
 C.—Kingston Hill. C''''''—Kingston Hill Pit. D.—Surbiton Hill.
 O.—Cemetery Hill.

Figure 3: contour map showing the bisected plateau (PGA, 1917)



Figure 4: The line of trees marks the top of the old gravel quarry, now within the Coombe Wood Golf Course: Barbara Silva explains the fauna

gravel with the Claygate Beds. Although no water was visible after a prolonged dry spell the leaders assured the group that the flow had been quite strong when they had visited during the winter.

At Ladderstile Gate we stopped to discuss the possible origins of the clay used for making bricks for the 8 mile perimeter wall. Although London Clay underlies much of Richmond Park, it is not a very suitable clay for brick making owing to the iron and gypsum content, the silty Claygate Beds at the top are very much better but there is not much evidence that either of these were used to any great extent. A third candidate is the Brickearth on the Richmond side and there is evidence that there was a brickworks there dating back to the early 1600s.

On exiting the gate we crossed over Kingston Hill to the top of the Coombe Wood Golf Course. The manager had allowed us in on a previous occasion to take photographs of the small exposures of the old quarry face. Standing at the perimeter fence we could easily see the line of trees that now marked the top of the old quarry. We stood opposite a clearing beneath which was the best potential for a temporary excavation. Little did we realise that it had been cleared for a purpose: this was a fairway! Beside it were steps up and the clasts observed when we visited seemed to be imbricated. The pouring rain on that occasion showed them up nicely on the photograph which was handed round the group. Another section was located close to the grounds-staff enclosure and we showed photographs from there too. Barbara Silva

explained about the fauna associated with the Black Park Gravels including the fragments of skull from Swanscombe.

After tea at the "George and Dragon" the party set out for Wimbledon Common. By permission of the Club Secretary they were able to cross the Coombe Wood Golf Course.

The George and Dragon still exists but under a new name, Brook Kingston Lodge Hotel. It is rather smart and a favoured venue for weddings, particularly on a Saturday lunchtime in May. We stopped on the corner of Kingston Hill and made a nod down the hill

in its direction to pay our respects to the earlier excursion but instead, turned upwards for a short way and then down to Kingston University where we ate our lunch on benches in the sun outside the refectory before heading off for Wimbledon Common.

By permission of the Club Secretary they were able to cross the Coombe Wood Golf Course to get a view of the wide flat-bottomed valley traversed by the little Beverley Brook, and to note the contrast between the much eroded sides of the valley and the more even slopes on the Thames side of Richmond Park. It was hoped that an equally good view would be had later on of the Hogg's Mill drainage area, but meantime a threatening mist sprang up obscuring the view and making it advisable to hurry the programme. This was to traverse the western edge of Wimbledon Common where, owing to trench making and other military operations, sections were numerous.



Figure 5: Bridge over the Beverley Brook; Paul Rainey explains the catchments and flows

There are now two adjacent golf courses in the vicinity, the one already visited is called Coombe Wood Golf Course but the more northerly one is now Coombe Hill Golf Course. From the description, this is probably the one that the 1917 excursion was able to cross, despite the name. As we have seen the more southerly one was a gravel quarry at the time. We didn't attempt to cross this golf course but we did stop on the bridge over the Beverley Brook to make observations on the present flow and drainage as well as the wide valley that it has cut between the plateaux of Richmond Park and Wimbledon Common. Happily there was no threatening mist.

Gravel exposures on the western edge of Wimbledon Common

(This was to traverse the western edge of Wimbledon Common where, owing to trench making and other military operations, sections were numerous.) It was seen that the gravel was of the same type as on Kingston Hill, also that what lay on the slopes had been brought down as a result of the wearing away of the edges of the plateau above. One section opened out quite recently across a spur between two gullies showed the gravel had slipped and sagged down the slope on either side.

We did not have the advantage of the military trenches and had to make do with small exposures beside the path. The slope up to the top of Wimbledon Common is more complicated than the one seen at Richmond Park as it starts at a lower level and crosses over Kempton Park Gravel and deposits of 'Head' and other soliflucted gravels on the way up. In addition there are definite exposures of Bagshot Sand overlying the Claygate Beds and underlying the Blackpark Gravel. No Bagshot Sand has been confirmed on Richmond Park although it is possible that a small horizon is there. We took a diversion to look at a good Bagshot Sand exposure above the Horse Ring, close to Caesar's Well. This had been shown to us by Una Sutcliffe on our earlier visit. She is one of the authors of the excellent book on Wimbledon Common. She and her husband Tony Sutcliffe describe the geology.

In another new section where gravel was seen resting on London Clay, the rain water percolating from above was being thrown out as a strong spring, and thus gave an excellent illustration of the mode of origin of the ponds met with both in Richmond Park and here on the Common.

En route we stopped at Caesar's Well and tasted the fresh

spring water. It is one of the few natural springs that is possible to drink. Another is the Goodison Fountain on Hampstead Heath although the water there is much more iron-rich, coming directly from the Bagshot Sands. This one comes from the base of the Black Park Gravel as did the spring observed in the old quarry in Richmond Park.

The walk was brought to a close at the Windmill, where the state of the ground showed how narrow the escape had been from the downpour which threatened on the way to the Common.

In order to reach our final destination of the Windmill we had to dodge the rain of golf balls of the London Scottish Golf Club, rather than a downpour. Sensibly the golfers are all required to wear red so we could see them coming. We went via Queen's Mere to see London Clay exposed at the water's edge and then up to the Windmill for Tea. Some members of the group went to see round the Windmill which was open and some to the little exhibition with a small display about the geology based on the geology chapter in the Wimbledon Common Book. Many of the old GA trips end with going to tea but this one was unusual in that they had tea half way round. Personally I had tea-cakes and very good they were too.

For a fuller description of the geology visit the website of the London Geodiversity Partnership and find the pdf of the Richmond Park Geotrail where the

descriptions of the geology are illustrated with diagrams, mostly applicable to Wimbledon Common as well: www.londongeopartnership.org.uk/geotrails.html. One of the participants from the London Natural History has also written up the walk on her blog. There you can find more pictures of the excursion from a slightly different perspective: http://alisonfure.blogspot.co.uk/2017_05_21_archive.html. Thank you Alison! And thanks also to Paul Rainey, Laurie Baker, Barbara Silva, John Lock, Mick Massie, Una Sutcliffe and particularly to Alister Hayes from the Royal Parks whose idea it was to repeat the Excursion.

Other references

Drakefield, T. & Sutcliffe U. (eds), 2000. Wimbledon Common and Putney Heath: A natural history. Wimbledon & Putney Conservators.

Grist, C.J., 1917. Excursion to Richmond Park, Kingston Hill, and Wimbledon Common, Proceedings of the Geologists' Association 28: 98-104.



Figure 6: Bagshot Sand exposure above the Horse Ring on Wimbledon Common