

## The archaeology of industrial extraction from Banstead and Walton Heaths

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*This article gives an account of the history or possible history of the 50 pits shown on the OS maps of Banstead and Walton Heaths surveyed between 1866 and 1934. Much of this history is associated with the extraction from 1755 onwards of flints and gravel for the building and maintenance of the two turnpike roads which crossed the heath, the Brighton and Pebble Hill Roads (the later A217 and B2032). Details are given of the Reigate Turnpike Trust's construction of the roads, the likely sources of the materials in terms of pits, the relevance of payments for carting in the identification of those pits and the use of the pits in the improvements made by the road engineer William Constable. The account goes on to deal with extraction by the Trust's successors, the Epsom District Highways Board and the Epsom Rural District Council. Identification of the pits likely to have been opened by these bodies is attempted, with information derived from their records and those of the Banstead Commons Conservators. Manorial and other extractors, and the extraction of chalk and loam, are also considered.*

### Introduction

This account of the archaeology of industrial extraction on Banstead and Walton Heaths began as a contribution to a report commissioned by Surrey Archaeological Society (SyAS) and Surrey County Council (SCC) and presented by the consultant specialist Chris Currie of CKC Archaeology in March 2001 (Currie 2001). A programme of such surveys was begun in the 1990s by SyAS and SCC to assess areas in Surrey for potential designation as Areas of Special Historic Landscape Value, based on their historical significance, and to study and make a record of the historic landscape. A Community Archaeological Project funded by both bodies was set up to involve local volunteers, and SyAS members in particular were invited to become actively involved on a voluntary basis. Work for the Banstead and Walton Heath Project, with Chris Currie as the overseeing Community Archaeologist, was carried out between October 2000 and March 2001 with the assistance of volunteers co-ordinated by the Plateau Group of SyAS. This account is a revised version of Bagnall 2002, which originally reported on all aspects of the heaths' industrial archaeology including farming, milling, railway, wartime and golf-course works, but is restricted here to extraction.

The study area is the common land of Banstead and Walton Heaths, comprising approximately 1200 acres.<sup>1</sup> This lies on a high plateau, between 150 and 200m OD, which slopes gradually down from the crest of the North Downs escarpment before giving way to the steeper descent into the London Basin. The incline is crossed by the long linear dry valley of Hogden Bottom with two tributary valleys running into it from the south and one from the north. The underlying geology is chalk, overlaid with thick deposits of Clay-with-Flints. The surface soils are highly variable, with much outcropping of clay, sand and gravel.

The area contains a number of sites of archaeological interest, the most important being the Walton Heath Romano-British villa – one of the most important rural Roman sites in the county – and a highly significant scatter of Palaeolithic flintwork. There are also Mesolithic flint scatters, possible medieval earthworks, and a mid-19th century windmill on the site of a much older one. The history of the commons seems to have been unremarkable from medieval times until 1874, when the lord of the manor attempted to buy out the common rights of the individual commoners with a view to developing the area for housing. The

<sup>1</sup> The Community Archaeological Project details and the site description are based on Currie 2001, vol 1, 1.0, 2.0, vol 2, 5.2.

ensuing twelve-year court proceedings ended in victory for the commoners and led to the setting up in 1893 of the Board of Conservators of the Commons, whose responsibility was to manage the land in the public interest. It was consequently frequently in dispute with the excavators who are largely the subject of this paper.

### **Aim and methods**

The aim was to establish when, by whom, and why the pits marked on the OS maps were excavated.

As part of the methodology of the Community Archaeology Project, an appraisal and interpretation of the documentary history of the study area in the Surrey History Centre (SHC) was followed by a landscape survey in October and November 2000 across different parts of the heaths.

To study the pits as a separate project, the OS maps were taken as a starting point and the study restricted to the 50 pits shown on the maps available in the SHC. After searching the relevant records, including those of the probable major excavators, in conjunction with the maps, the heaths were surveyed again in January 2001 to establish where possible the existence of each pit, its grid reference (with the use of a global positioning system) and its present condition, and to look for evidence of its original or later purposes (table 1, see *Endnote*). The pit sites ranged from open grassland to well-established woods, from single outliers to long lines of intensive working, from shallow depressions (or nothing at all) to holes 20 feet (6m) deep. It was difficult to ascertain the materials extracted from any particular pit since most are now overgrown. Some have what appears to be a sandy or gravelly soil; others have flints and pebbles on the base and sides. Apart from the sand and chalk pits which are separately identified on the maps, the pits that are labelled are called simply '(Old) Gravel Pits', without reference to the flints which were clearly being extracted; in many cases flints and gravel must have been taken from the same pits.

### **Evidence**

The evidence for extraction from the heaths is in the form of numerous disused pits which are extant and documentary records of these and previous pits which have been filled, the extracted materials recorded being flint, gravel, chalk, sand and loam.<sup>2</sup> The 50 pits which have been mapped and are the subject of this account are shown on OS map 1:2500 XXVI.2 (northern part of survey area), surveyed 1866–8, published 1877, 1896 (rev 1895), 1912, 1914 (rev 1912) and 1933 (rev 1933); and OS map 1:2500 XXVI.6 (southern part) surveyed 1867–9, published 1896 (rev 1895; earlier edition not available), 1914 (rev 1912) and 1934 (rev 1933–4). No documentation, apart from one probable reference, has been found for the pits south of Hogden Bottom and the earliest OS map for most of these has had to be 1896; in these cases the possibilities relating to the origins of other pits have been suggested as a starting point for future research.

#### EXTRACTION OF FLINTS AND GRAVEL FOR ROAD CONSTRUCTION

Most of the pits must be ascribed on documentary or locational evidence, or both, to the extraction of flint and gravel for the construction and maintenance of roads, although farming and the search for building materials may be responsible for some others and a few may be natural solution hollows. Bomb craters and war-works were, according to the Banstead Commons Conservators' records, infilled at the end of the war.

There is an obvious possibility that in Hogden Bottom, for example, where there was a very large source of flint and gravel, some extraction on a small scale took place before the

<sup>2</sup> For the geological context see Currie 2001, vol 1, 2.1.2–3, 2.1.5.

modern period for the maintenance of roads and tracks, especially after 1555, when parishes were made responsible for the upkeep of their own roads. In the absence of documentary evidence, no means of identifying such extraction has been established, and traces of small-scale work, especially in productive areas like Hogden Bottom, would in any case probably have been obliterated by later more extensive digging.

### *Turnpike construction*

The first major extractor of materials from the survey area was the Reigate Turnpike Trust (RTT), established by Act of Parliament in 1755<sup>3</sup> for improving and turnpiking the roads from Sutton to Povey Cross (Horley) via Reigate (the later A217), from Sutton to Ewell via Cheam (A232) and from Tadworth 'by the Windmill' (in fact from Tadworth Court) to the bottom of Pebble Hill (B2032). The Trustees, who normally met in Reigate (usually, until 1853, at the White Hart or the Swan), were mainly local landowners, MPs, clerics and lawyers; original members with property on the turnpike included Sir Christopher Buckle of Nork Park and Gerard Fleetwood of Tadworth House (later Tadworth Court).<sup>4</sup> The Trust's capital was provided in the form of loans at 4% (initially totalling £2,800) from investors who included, for example, in June 1780, the Lord Chancellor, the two MPs for Reigate and various other members of the peerage and landed gentry. The Trust was responsible over 127 years for the maintenance among its other roads of the two stretches of the north–south roads which pass through the survey area: the approximately  $\frac{3}{4}$ -mile portion of the A217 London to Brighton road TQ2400 5647–TQ2425 5524 (from the northern tip of the survey area opposite Tadworth Court to the Banstead/Kingswood parish boundary) and the c 2-mile portion of the B2032 Tadworth to Pebble Hill road TQ2400 5647–TQ2400 5368 (from Tadworth Court to the present M25 cutting).

At this date, building an extra-urban turnpike was carried out in general, although with considerable local variations, by digging a trench, filling it with a foundation from five inches to more than three feet deep of unbroken local stone and topping it with a layer or consolidated layers of broken stone rammed into the foundation. The surface was formed into a suitable shape, usually convex, to assist drainage and was covered with a protective layer of gravel or fine loose broken stone. Wet ground was crossed by laying faggots of furze, heather, timber or brushwood as a bed-raft under the foundation, with sand and gravel also being occasionally used for drainage.<sup>5</sup>

The materials extracted from the common by the Reigate Trust for these two stretches of road were flints and gravel, and possibly small quantities of sand. They also occasionally took what they refer to as 'heath', which was either furze or heather.<sup>6</sup> One of the few explicit statements about the Trust's extraction from the heaths in this period is to be found in the minutes of its meeting of 11 March 1783:

Mr Robinson (Surveyor) having represented to this Meeting that Mr Hughes [one of the original Trustees] had forbid the digging for Flints upon Walton Heath for the use of this Turnpike and it appearing that the act of Parliament enables the Trust to take Materials from Wastes ordered that the Clerk do send a Letter to Mr Hughes to inform him that as Materials cannot be conveniently had from any other place the Surveyor is directed to go on to get the same on Walton Heath and that if Mr Hughes has any objection he is desired to mention it at next meeting.

By this date, flints would have been for maintenance rather than construction, but it is significant in terms of assessing the degree of extraction in general that Walton Heath is

<sup>3</sup> 28 Geo. III, cap 28.

<sup>4</sup> SHC: K68/1/1–13, 15 April 1755.

<sup>5</sup> Albert 1972, 135–8; Bird 1969; Glen 1897, 297 ff.

<sup>6</sup> SHC: K68/1/1–13, April 1756.

apparently the only economic source of flints for the roads on the common and possibly others. Nothing further is heard from Mr Hughes who, in raising an objection nearly 30 years after extraction had begun, may have been representing the lord of the manor of Walton in an attempt to assert ownership rights.

### The Brighton Road

In addition to this direct reference, there is abundant indirect evidence that extraction from the common took place from the earliest days of the construction of these roads.

There is, first, the fact that since turnpike trusts were permitted by law to extract road-building materials from common land free of payment to the lord of the manor,<sup>7</sup> it would have been contrary to the Subscribers' interests to incur charges by extracting materials from other land.

Secondly, there are the inferences to be drawn from the minutes of the Trust's meetings and its treasurer's accounts. Using these to establish facts about the two roads is not straightforward: the minutes are naturally allusive rather than explanatory and the accounts lack detail after the first two years; at any period they are not always easy to follow in terms of location. Some reasonable deductions can be made, however, about sources.

One of the Trust's earliest works was to 'repair' (in effect, build) and widen the Brighton road from Tadworth Court to the tollgate at Ruffett Wood in Lower Kingswood, an undertaking which was started in the first week of July 1755, three months after the Act came into effect, and which apparently took about twelve months.<sup>8</sup> The work was probably urgent. The Trust's later surveyor, William Constable, referred to this as 'the most hilly district of all our roads', and the clayey soil of the original dirt roads on the slopes and in the hollows sometimes produced impassable conditions. William Cobbett's well-known observation that 'From London to Reigate, through Sutton, is about as villanous [*sic*] a tract as England contains'<sup>9</sup> probably referred to this stretch more than any other and was made even after 67 years of the Trust's ministration, including Constable's major improvements to the stretch from Tadworth to Reigate.

The starting point of this portion of the road seems likely to have been where an avenue from Tadworth Court crossed the road at the top of Wilderness Hill just to the north of the Brighton Road/Dorking Road fork (see Rocque's map of 1762). In the Trust's minutes of 12 May 1755,<sup>10</sup> this point is referred to as the southern limit of the part of the road for which the surveyor in charge of the Potters Lane (Banstead cross-roads) to Tadworth stretch is responsible. The Trust specified for this stretch a maximum of seven cartloads of flints per rod (5½ yards) for the foundation and intermediate layers and one cartload of gravel as a protective covering,<sup>11</sup> the equivalent of 2240 cartloads of flint and 320 of gravel per mile. The width of the road is not stated, but a scale plan made by William Constable in 1819 implies a width of 20 feet. As the plan was made primarily to illustrate for the Trustees some proposed alterations to the road, it may be a mistake to interpret it too strictly, but 20 feet (30 feet overall with a 5-foot-wide hedge each side) is also the proposed width of the turnpike near Banstead Downs on another of Constable's plans. At a width of 20 feet, the depth of the flints according to the Trust's specification would be on average 20.6 inches and the gravel 3 inches.

On 1 July 1755, in the week the work began, the Trust's minutes record a tender from two local men, John Rapley of The Warren, Kingswood, and Bernard Gale of Kingswood

<sup>7</sup> Albert 1972, 15 note 6: 77–78.

<sup>8</sup> SHC: K68/2/1.

<sup>9</sup> Cobbett 1885, 1, 206.

<sup>10</sup> SHC: K68/1/1–13.

<sup>11</sup> *Ibid*, 5 April and 4 May 1756. A cartload was probably 3 cubic yards (SHC: K68/1/1–13, 19 April 1833, 25 November 1836) weighing approximately 3½ tons (C Clark, St Albans Sand and Gravel Co, pers comm).

Farm (on the southern corner of the Brighton Road and Stubbs Lane, just below Ruffett Wood), for providing and carrying 'stones' for the building of the road from Tadworth Court to Ruffett Wood at 1/6d a load. Although 'stones' might at first seem likely to be a generic term denoting flints and/or gravel, the fact that it must denote only flints is shown by minutes entries which draw a distinction between 'stones' and 'gravel', eg 17 May 1762: the Walton surveyors are to 'break the stones' laid on the turnpike the previous year and the same are to be 'gravelled'; 4 Jun 1764: 5 rods are to be 'sufficiently made with stones and gravel in lieu of the Duty'; 30 Jun 1766: a similar entry referring to 'stones and gravel'. The term 'flints' is rare in the Trust's papers before 1804, whereas 'stones' appears very frequently; after this date, only 'flints' seems to be used. Although approval of these tenders is not minuted, there is no mention of any others; payments to Rapley and Gale for flints and carting start to occur in the Treasurer's accounts three months later in September 1755 and end in May 1758. No location is given for the work, but there can be little doubt from this evidence alone that the suppliers of flints for this stretch of road were these two men.

The question of sources can now be looked at more closely. It is reasonable to suppose that, as the carting would have been organized as economically as possible, Gale, living to the south, would supply stones for the southern part of the road from nearby pits and Rapley, living to the north, would do the same in the northern part, with the awkward dip of Hogden Bottom, which no carter carrying  $3\frac{1}{2}$  tons would want to cross more often than necessary, as the likely boundary. Both the allocation of the tender and this apportionment are confirmed by the fact that between September 1755 and October 1757 Rapley was paid £170 16s, which would represent 2277.3 cartloads and 1.01 miles of road construction – precisely the distance between the Tadworth Court avenue and Hogden Bottom.

If Rapley happened to be the owner or tenant of Old Warren Farm, he would have had the use of several pits along the sides of Hogden Bottom below the turnpike, including Smugglers' Pits (flint gravel, about 5 feet deep; Dines and Edmunds 116), which lay in his grounds. However, as they were not on common land, materials from these pits would not have been free of charge to the Trust; in addition, one of the Trust's main considerations would have been to have the flints and gravel carted for as short a distance as possible, and there was a closer source for flints than these pits. A plan made by Constable in 1819<sup>12</sup> shows that on the common opposite the Warren, next to the road, was a large pit (P41), shown in 1866–8 as 0.658 of an acre in size.<sup>13</sup> Its vestiges can be seen today, about 4m high, partially filled and much reduced by the widening of the A217. Rapley's 2277.3 cartloads at 3 cubic yards per load amount to 6832 cubic yards; P41, allowing 50% for slope and spoil, would yield about 6845 cubic yards,<sup>14</sup> very close to that figure (although the calculation of the pit's volume is obviously only approximate), and is located immediately beside the stretch of road in question. It is extremely probable therefore, that John Rapley, who lived somewhere opposite in the Warren, took some or all of his flints from P41 for the stretch of the turnpike from Tadworth Court to Hogden Bottom. At about  $3\frac{1}{2}$  tons per 3 cubic yards, Rapley must have extracted about 8000 tons.

The Trust's payments to Bernard Gale, the other carter who tendered for this stretch of road, amount to £218 6s, representing 2910.6 loads and 1.3 miles of road. The precise location of Ruffett Wood tollgate at this date is unknown, but the distance from Hogden Bottom to the start of the present-day wood is approximately 0.966 miles (requiring 2164 loads) and to the end of it approximately 1.08 miles (2419 loads), so Gale was paid for about 500–750 extra loads. Possibly the surveyor requested coverage of up to 587 yards more than the original tender towards the top of Reigate Hill, or it may be that the specification was exceeded because of wet or steep ground. The OS map of 1896 (sheet XXVI.7) shows a large

<sup>12</sup> SHC: 907/3. Plan and sections of alteration of course of Reigate turnpike road over Woodhouse Hill, Walton Heath.

<sup>13</sup> OS map 1877, sheet XXVI.2.

<sup>14</sup> 0.658 acres = 3184 square yards x about 4.3 yards deep = 13,691 cubic yards x 50%.

pit (1.41 acres) in Ruffet Wood, in the north-east corner of the junction of the Brighton Road with Babylon Lane, from which Gale's flints and gravel may have come; there are also two pits described as chalk-pits on the farmland further south, one 0.9 acres in size, from which flints might have been taken, but it is more likely in view of their location in the middle of fields that these were indeed for chalk for agricultural (marling) purposes.

One other identification might tentatively be made. Among the carters mentioned in the accounts is one William Killick. He is actually the recipient of the first payment for carting, a part-payment of £3 10s on 5 July 1755, followed by the balance of 10s on 19 July. No mention is made of a location for the work. Elsewhere, a John Killick is paid for carting on the northern part of the turnpike<sup>15</sup> and a Killick (possibly the same) for digging 60 loads of flints in Cheam (12 October 1767); another (?) Killick is paid for work on the Reigate to Povey Cross road. However, Constable's watercoloured plan of 1819 has a white shape painted in beside the road on the northern corner of Hogden Bottom with the name 'Killick' pencilled beside it. This must denote pit P23b (see fig1; P41 is shown in the same way but without a name), and it is possible that the pit was in the possession or occupancy of the same family in 1755. No mention is made of what Killick carted, but in July 1755, only eight weeks after work started anywhere on the turnpike, this was far more likely to have been flints for foundations than gravel for a surface. Most of the previous work, for which payments began on 12 May, had taken place at other points on the turnpike, but five weeks' work had been carried out at 'Tadworth' (probably just to the north of Tadworth Court) by the beginning of July, and it may be that P23b was the nearest known source of flints for this stretch, P41 being brought into use, or reserved for use, by Rapley in September. Alternatively, it may have been decided to make good the lowest parts of the dip into Hogden Bottom before starting on the road on both sides. Killick's payment, if it was on the same basis of 1s 6d a load as Rapley's and Gale's, would represent 53.3 cartloads of flints, only about 42 yards of road construction, which might have taken care of the middle of the Bottom; P23b would have been ideally situated for this work. It and its neighbour P22 are labelled 'Old Gravel Pits' on the OS for 1896 and 1912, although even today P23b can be seen to have contained flints as well. It may in fact have originally been dug for the turnpike and may have reached the size shown on the 1819 plan through supplying gravel, flints and chalk for various purposes over the intervening years.

The extraction of gravel from the common for the surface layer of this portion of the road is not easy to track down. The indications from the accounts are that this stretch was finished in August 1756: regular weekly payments to 'workmen at Walton Heath' are made from July 1755 to July 1756 (with a gap January to April); to workmen at The Ruffett, August to October 1755; and to workmen at Kingswood, January to June 1756 (there are occasional payments in all three areas before and after these dates). Payments to 'workmen at Walton Heath' might be taken as referring to workmen on the portion of the Dorking road which lies across Walton Heath rather than to the Brighton Road which lies across Banstead Heath; that this would be wrong can be shown for two reasons. First, the fact that payments for work on the Dorking road at this period were made through two sub-surveyors, Messrs Spooner and Hervey, who were advanced money by the treasurer on account and who subsequently submitted their statements of expenditure. Secondly, the large sum of money laid out, which could not apply to the less important Dorking Road and which would leave insufficient accounts entries to relate to the Brighton Road. As in the Trust's minutes of 12 May 1755 and elsewhere, 'Walton Heath' here apparently refers in fact to Banstead Heath. Immediately following the last of these payments on 3 July 1756, there occurs in July and August a cluster of four payments for gravel-digging, the first and only ones in this section of the accounts, totalling £70 and representing a large amount of material. This must indicate the final stage had been reached somewhere on the turnpike, and the ending of the payments to workmen on this stretch and no other just beforehand implies strongly that this is the one

<sup>15</sup> SHC: K68/2/1, February 25, April 9, 1757.

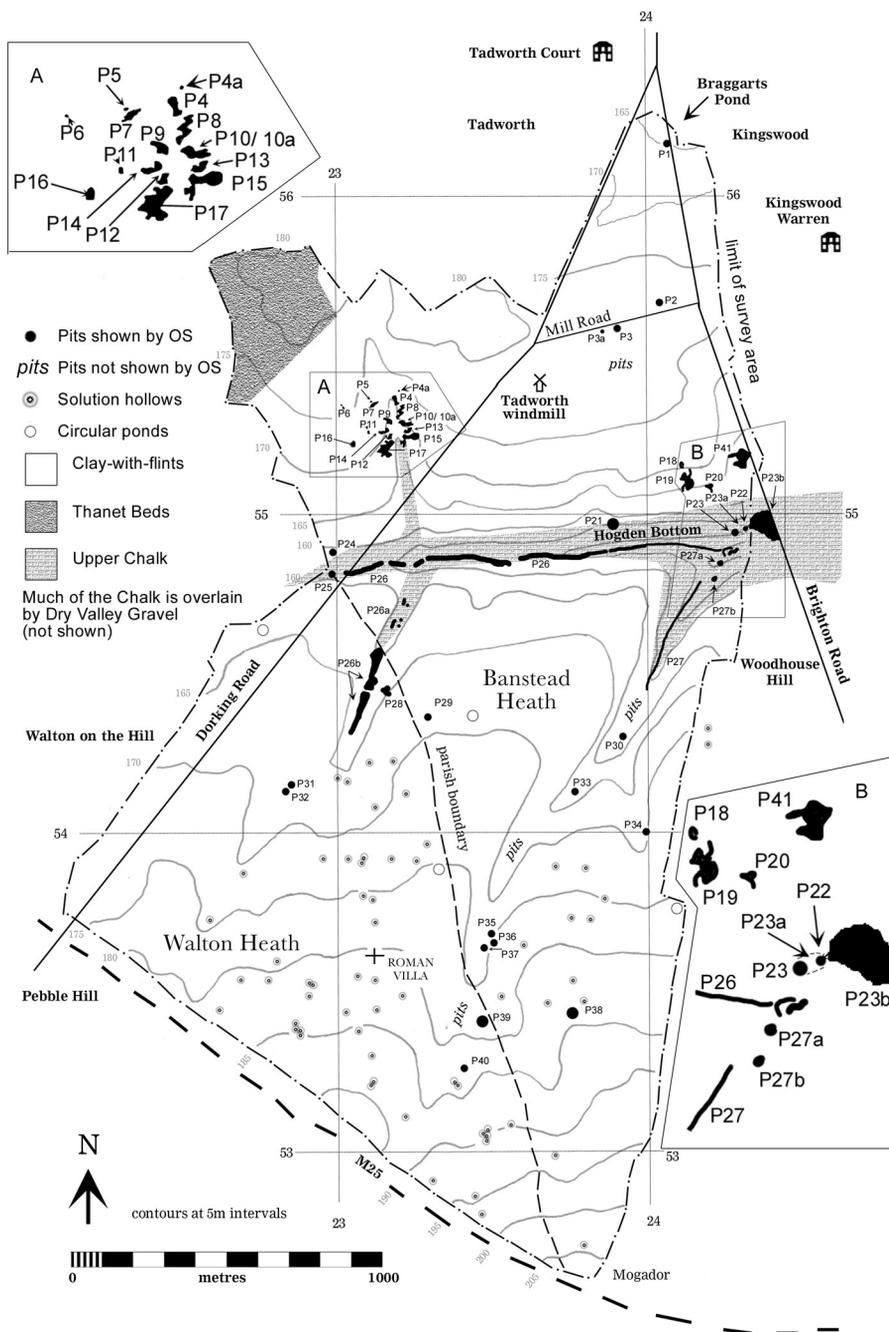


Fig 1 Pits and hollows on Banstead and Walton Heaths. Insets A and B are at twice the drawn scale. Circular ponds and solution hollows are not to scale. Contour heights are shown in metres OD. (© Crown Copyright. NC/2004/33611)

concerned. (On the other hand, Rapley's final payment for flints does not appear in the accounts until at least April the following year, and Gale's not until May 1758 – although the latter can be explained by the extra loads suggested above: the accounts show that his loads for the Hogden Bottom to Ruffett Wood stretch would have been paid for in 1756.)

Approximately 650 loads of gravel would have been required to surface this stretch. The obvious source is the enormous deposit in Hogden Bottom and its tributary valleys, but the gravel could also have been dug from superficial deposits in various places on the heath if they were closer or enabled the carters to avoid the steep hills of the Bottom. Unfortunately, no tenders are minuted, so the suppliers, sources and quantities cannot be identified in the same way as with the flints. Work was proceeding between July 1755 and July 1756 at about twelve places on the Trust's roads simultaneously, and the accounts record payments to nearly forty carters in addition to Rapley and Gale with no information as to where they carted to or from. Four entries in the accounts at this time, between 19 July and 13 September, are for payments made to 'Stonepickers [flint diggers] Walton Heath' (as distinct from the 'workmen' who laid the road) and one for 'Stone Digging, Walton Heath', totalling £5 11s, further evidence of the common as a source, although the destination of the flints is unknown.

In 1815, William Constable was appointed as the Trust's surveyor and carried out several major improvements on the turnpikes. In 1820–21, the largest works to affect the survey area were undertaken – the straightening and raising of the road as it crossed Hogden Bottom, together with the levelling of Woodhouse Hill (a scheme which had been mooted but shelved under Constable's predecessor Robinson 35 years earlier in 1785).<sup>16</sup> The steepest recommended gradient for a horse drawing a heavy cart is 1:20, and even 60 years later, on better roads, the recommended standard gradient was only 1:30.<sup>17</sup> Prior to the works, the road northwards from Lower Kingswood descended a slope as it does now but, before the junction with Chipstead Lane, steeply ascended Woodhouse Hill, gradient 1:20, descended on the other side a slope of 1:22 for 440 yards, swung left and made a sharp dip onto the floor of the Bottom, then swung right and rose equally sharply out again before climbing the 1:18 slope back onto the normal level of the heath – the elbow of approximately 45° at the bottom of the dip being formed to ease the gradient and presumably to keep the road to slightly higher and drier ground. The second hill, north of the Bottom, is referred to in the Trust minutes<sup>18</sup> as '[the part called] Kingswood Shoot', presumably with reference to Kingswood Warren, which adjoins on the east side and is later marked as the site of a 4-acre pheasantry.<sup>19</sup> No other valley like this was to be met with on the whole length of the turnpike. A corresponding configuration, but on a much smaller and gentler scale, is still encountered on the other side of the heath where Hogden Bottom is crossed higher up its course by the Dorking Road at Castle House (TQ 2317 5499). Although the two sharp dips must have been a difficult spot for heavily loaded carts, this road was the poor relation and no improvement was made.

Constable's improvement was to level Woodhouse Hill by shearing off its top and using the material to fill the valleys immediately to the north (Hogden Bottom) and south (with the result that road-users today are aware of only a moderate ascent over the remains of Woodhouse Hill just south of the roundabout). The filling of the deepest part of the Bottom enabled Constable to continue the road across it in a straight line on a causeway, cutting out the elbow altogether (the road can still be seen to be well above the level of the quarry floor on the north-west side of the junction, although the embankment is new following modern road-widening). The cross-road, Chipstead Lane and its continuation as a track across the common, was steeply ramped to meet the embanked turnpike on each side (as it meets the

<sup>16</sup> SHC: 907/3, plan; K68/1/1–13, 1 June 1818–6 July 1821; (earlier proposal) K68/1/1–13, 12 November and 17 December 1782, 6 and 26 September 1785, 29 September and 11 November 1788.

<sup>17</sup> Glen 1897, 297.

<sup>18</sup> SHC: K68/1/1–13, 1 June 1818, 8 October 1819, 28 April, 30 June, 28 July 1820.

<sup>19</sup> OS 1:2500 map 1896 sheet XXVI.2.

roundabout today), and a similar ramp was provided for a drive from a neighbouring landowner's house on the west side of the road, south of the junction. Some pencilled additions to Constable's plan<sup>20</sup> appear to indicate that he considered the alternative, first presented in the 1785 proposal,<sup>21</sup> of taking the cross-road under the turnpike through a short brick tunnel. This would have been in the public interest, giving easier access, without ramps, between the heath and Chipstead Lane. No discussion of this option is minuted. The reason for its not being adopted was presumably the additional cost, which in 1785 was £35.

Although most of the embankment's material (which, unlike that for road-building, could include chalk and clay) came from the shorn top of Woodhouse Hill, it seems from Constable's drawing that there might have been a need for more, and that that may be why he indicates not only the existence of a pit beside the elbow (P23b) but also the name of its owner (or tenant), Killick. There would presumably have been more than enough useable flints from the replaced roads, which had been laid over 60 years before, to form the new ones, although Constable may have favoured using a greater quantity for the foundation than the pioneers of 1755. However, a fresh layer of gravel for the new road would have been required and would presumably have been taken from Hogden Bottom or P23b.

In the following year, 1822, gravel was again extracted from the closest possible source when Constable carried out another levelling scheme beside Braggarts Pond<sup>22</sup> near Tadworth Court (TQ2406 5625). Here, two small depressions each side of an annoying ridge were filled and the road levelled – a Woodhouse Hill operation in miniature.<sup>23</sup> The earliest OS map of this area (1877) shows a pit on the common at the roadside at precisely this point (P1), and there can be little doubt that it was dug for gravel for the surface of the new length of road. Constable's proposal for a similar scheme (costing £149 15s 4d) for Wilderness Hill, beside Tadworth Court, was accepted by the Trustees in December 1833, then shelved in February 1834. In his farewell report in July 1837, he stated that 'The one or two cases [...] in which our Road still needs improvement, have before been under the consideration of the Trustees; the one is the proposed cutting through the Hill and filling the adjacent valleys [*sic*] at Tadworth [...] it consists in the total destruction of 21 feet of rise and fall, and as this improvement will be effected on the most hilly district of our roads, it will be a valuable bonus to the public, especially to that large portion which consists of impatient travellers with weary horses: I believe that we have had no opportunity on any part of our Road of effecting the reduction of so great an Amount of Hill with so moderate an outlay as may be done in the Case under review.'<sup>24</sup> The recommendation was not acted upon: Constable retired at the zenith of the Trust's fortunes, which went into decline after the opening of the London to Brighton railway a few years later. The hill remains.

In 1840, Constable's successor was ordered to see that the various statutes relating to 'the filling up levelling and protecting Holes and pits dug and made on the wastes of the Manors in which Materials are dug and taken for the use of the Roads of this Trust be strictly adhered to and complied with'. This directive was probably taken to apply to diggings after this date, since all the pits referred to above were still being shown on the OS survey of 1866–8, and should be borne in mind when seeking other evidence on the ground for extraction by the Trust, although whether it was complied with it is not possible to say. It presumably arose from a complaint, possibly from the lord of the manor.

### The Dorking Road

The documentary evidence for the construction of the Dorking Road is much leaner. No tenders are mentioned and, although the accounts record payments totalling £200 in 1755

<sup>20</sup> SHC: 907/3.

<sup>21</sup> SHC: K68/1/1–13, 26 September 1785.

<sup>22</sup> 'the Common Pond' (SHC: K68/1/1–13, 29 March 1822).

<sup>23</sup> SHC: 907/7; K68/1/1–13, 29 March 1822.

<sup>24</sup> SHC: K68/1/1–13, 14 July 1837.

and 1756 to the sub-surveyors in charge of this stretch, none of the many payments to carters can be specifically linked with it. There are likely sources for the materials, although they are entirely speculative: the earliest relevant OS map (1877, sheet XXVI.2), shows a chalk pit near the roadside (P24) which may well have provided flints; flints and gravel would have been easily accessible at the western end of Hogden Bottom; and there are extensive workings near the east side of the road, running south from Hogden Bottom (P26a, P26b), which may also date from this time.

The main source, however, must have been the pits still to be seen in the area of intensive digging west of the Dorking Road, south of the path between Mere Pond and Walton Mill and generally east of the large earthwork. Some of these, as the OS shows, represent later extraction, but the 1866–8 survey shows as already in existence a group of three pits named ‘Gravel Pits’, P8, P10 and P13, together with unnamed P16 in the corner of the earthwork (and north of these, three pits close to the path, each named ‘Sand Pit’, P4a, P5 and P6), and there seems little reason to doubt that at least the former were sources for material for the construction and maintenance of the turnpike; this area may have been developed in addition to the upper stretch of Hogden Bottom, part of which is even closer to the road, for the practical reason that from the pits near the earthwork the loaded carts could be driven downhill.

Only three loads of stones per rod were laid on this road as opposed to the seven on the Brighton Road.<sup>25</sup> This undoubtedly reflected its lighter use, but may also have been a result of the Trustees’ aim to cut costs on a road which may from the outset have promised to be the financial failure that it was.

On 2 June 1755, the Trustees gave an order to repair the road from the Crown alehouse (near the later Walton Oaks and just beyond the south-east corner of the survey area) to the bottom of Pebble Hill.<sup>26</sup> The work was simultaneous with that on the Brighton Road until mid-November, and a bar was erected at the bottom of Pebble Hill for the collection of tolls from 20 August 1756.<sup>27</sup> However, by June in the following year, the tolls were found to be insufficient to pay the Collector’s wages. The Collector was dismissed and the gate thrown open.<sup>28</sup> A year later, in June 1757, new gates were erected, and in July a tollhouse apparently built at the top of the hill,<sup>29</sup> but after fifteen months the gates were again thrown open.<sup>30</sup> No further tolls for this road appear in the accounts before 1815, the last date for which accounts have survived. In June, 1856, the trustees decided to have another try, and built a tollhouse and gate at the top of Pebble Hill, on the south-east side of the road, to try to catch the traffic from Headley as well as that coming up Pebble Hill;<sup>31</sup> again, they were taken out of use a year later, this time as the result of negotiations with the parish surveyors of Walton on the Hill and others to undertake repairs for an annual fee. In July 1857, the tollhouse and gate were ordered to be sold.<sup>32</sup>

After the tollgate was abandoned in 1758, the Trustees understandably appear to have relied entirely on free statutory labour from the liable parishioners of Walton. As this labour was available for only three days a year, progress was naturally rather slow. The road advanced at the rate of just 27½ yards a year, the Walton surveyors being instructed by the Trustees in 1761, (with minor variations of wording) and every year from 1763 to 1767 to ‘make five Rods of the Roads with Stone from the place where they left off at last year’; the 1762 session was spent breaking flints and gravelling.<sup>33</sup> In seven years, less than 200 yards

<sup>25</sup> *Ibid*, 26 May 1763.

<sup>26</sup> *Ibid*, 2 June 1755.

<sup>27</sup> *Ibid*, 2 August 1756.

<sup>28</sup> *Ibid*, 14 June 1757; K68/2/1, 332–3, 345–55.

<sup>29</sup> SHC: K68/2/1, 270–284.

<sup>30</sup> SHC: K68/1/1–13, 25 September 1759.

<sup>31</sup> *Ibid*, 19 June 1856.

<sup>32</sup> *Ibid*, 18 May and 20 July 1857.

<sup>33</sup> *Ibid*, 6 July 1761, etc.

would have been completed. In 1772, the Trustees ordered that the road was to be finished within two years – nineteen years after it was begun.<sup>34</sup>

Schemes for improvements of the 1:6 gradient at Pebble Hill were considered in an attempt to make the road profitable. In 1791, it was decided that the hill could not be made less steep without ‘an immense expense’.<sup>35</sup> This was borne out in 1832, when the engineer Thomas Telford was called in to view it and suggested improvements costing £1357; the Trustees not unnaturally decided it was ‘not expedient’ to proceed.<sup>36</sup> Three years later, Constable was directed to spend not more than £100 on widening and improving the road at this point, and this was done in January 1836 – the flints costing as much as 7s a load, possibly for the difficult delivery on the hill.<sup>37</sup> In his farewell report in 1837, Constable advised the Trustees that moderate expenditure on Pebble Hill would not do any good, and that, since more than half the Trust’s traffic derived from whole journeys between London and Brighton, the prospect of a London to Brighton Railway made the ‘considerable outlay’ which would otherwise be necessary not worthwhile;<sup>38</sup> if that prospect improved (ie if Parliament did not approve the railway), considerable improvements could still only be made by extending the road ‘some little distance into the parish of Betchworth’, presumably in the form of a zigzag, which may have been the scheme Telford proposed. The opening of the railway put paid to any improvements which might have been made, with the result that the road today retains its original gradient.

*The pits of the Reigate Turnpike Trust, the Epsom District Highways Board and Epsom Rural District Council*

The 1865–68 OS survey of the northern part of the heath shows nineteen pits, comprising nine (P1, P3, P19, P21, P22, P23, P25, P26, P41) labelled ‘Old Gravel Pit(s)’ (presumably disused), four (P2, P8, P10, P13) ‘Gravel Pit(s)’ (presumably currently or recently in use), three (P4a, P5, P6) ‘Sand Pit’, one (P24) ‘Old Chalk Pit’ and two (P16, P23b) unlabelled. (In the absence of a ‘Flint’ label, ‘Gravel’ must be taken to include flints, which the documentary evidence shows without doubt were extracted from these pits in general and Hogden Bottom and others in particular.)

So far as major extractors are concerned, most of the nine ‘Old’ pits in this 1865–68 survey can reasonably safely be ascribed to the RTT, which operated until 1882. P23, which is labelled ‘Chalk Pit’ in the 1896 revision, may have been opened by the Trust or a lord of the manor, and was apparently developed by the manor later (see *Manorial Pits* and *Extraction of Chalk*, below). Some digging may have been carried out by the Epsom District Highways Board (EDHB), which was created in 1864, and which is on record in the 1880s as extracting flints from Hogden Bottom for use on its roads elsewhere in the district. It may be significant, however, that the first record of this practice, in 1883, is in the year after the Board took over responsibility for the turnpikes, and the probability is against the Board’s opening and then closing a pit, which was then labelled ‘old’, within the three years between its own inception and the survey’s final date.

For the same reasons, the four gravel pits not labelled ‘Old’, and presumably therefore still in use, can also be counted as very probably belonging to the Trust, with the possibility that they were the Board’s being only slightly stronger than is the case with the ‘Old’ pits.

Of the two unnamed pits, P23b (the ‘Killick’ pit, partly associated with the Trust, on the Brighton Road) has been considered above, and P16, inside the south corner of the earthwork ‘Camp’ east of the ‘Blue Ball’, also probably the Trust’s along with the others, may have been

<sup>34</sup> *Ibid.*, 26 October 1772.

<sup>35</sup> *Ibid.*, 6 December 1791.

<sup>36</sup> *Ibid.*, 13 April and 16 November 1832, 25 January 1833.

<sup>37</sup> *Ibid.*, 9 October 1835, 25 November 1836.

<sup>38</sup> *Ibid.*, 14 July 1837.

left unlabelled because of uncertainty as to whether or not it formed part of that earthwork. The three very small sand pits may be associated with local building.

The 1895 revision of this survey shows all the pits previously recorded (with the exception of the three small sand pits), and a considerable increase of activity in the form of fifteen newly recorded pits and two enlargements.

Of the eight pits which appear to be unquestionably new (previously unrecorded and now labelled 'Gravel Pit(s)'), five (all P26a) are in a cluster just south of Hogden Bottom at the Dorking Road end and two (P27a, P27b) in the same position on the other side of the heath at the Brighton Road end, south of Killick's pit. The eighth (P15) is in fact connected by a narrow digging with P13 but on the map has the appearance of a different pit of a much larger size. Three of the newly recorded pits (P18, P20 and P27) are labelled 'Old Gravel Pits'. One explanation of this could be that they were simply overlooked in the 1865–68 survey; another could be that they were opened and closed between the survey and the 1895 revision. Given the thoroughness of the survey, which recorded even very small sand pits, and the facts that P18 and P20 are close to a larger previously recorded pit (P19) and that P27 is a line of very obvious diggings about 400m long and 6m wide along the floor of a tributary of Hogden Bottom where flint and gravel pits would be most expected, the second explanation seems the more likely.

Of the four pits which also appear to be new (unlabelled but previously unrecorded), the very small 3a may be either sand or, like its neighbours P2 and P3, 'gravel'. An obvious explanation for these three small pits on the north and south sides of Mill Road is that they were dug for gravel for its construction (date unknown) and maintenance (although the soil in P3 seems sandy). In 1909, the Conservators proposed that 'a small disused gravel pit opposite Tadworth Green' be used as a pit for house refuse 'in place of the adjacent pit now filled'.<sup>39</sup> P3a is indeed almost filled, although the adjacent pit is unknown; P3 is unfilled. The remaining three unlabelled pits P11, P12 and P14 are in the area to the east and north-east of the Blue Ball earthwork, extensively dug for flints both before and after this date. The enlarged pits are P8 in this area and P19 on the northern slope of Hogden Bottom near the Brighton Road.

Since these fifteen pits and two enlargements were opened after 1868 at the latest and before 1895, they are probably the work either of the Trust (up to 1882) or the EDHB (up to 1894), with the Epsom Rural District Council (ERDC) in its first few months only a slight possibility. They show that the new activity is in the areas east and north-east of the Blue Ball earthwork, north and south of Killick's pit at the junction of Hogden Bottom with the Brighton Road and on the south side of Hogden Bottom near its junction with the Dorking Road.

The 1895 revision of XXVI.6 (surveyed 1865–8), the southern part of the heath, shows fourteen pits (and P27 continued from XXVI.2), comprising seven (P30, P35, P36, P37, P38, P39 and P40) labelled 'Old Gravel Pit(s)', four (P26b, P28, P31 and P32) 'Gravel Pit(s)', and three (P29, P33 and P34) unlabelled.

As with the northern part of the heath, the seven 'Old' pits in this 1895 revision can be taken to be pits which were not in current use, and can therefore be ascribed to the RTT (operating until 1882), the EDHB (until 1894), the manor or possibly, in the case of P35–P40, to an extra-parochial extractor of whom more will be said later.

The four gravel pits not labelled 'Old' and presumably therefore still in use, could be continuations of pits begun since 1868 or recently opened ones and could therefore be the work of any of the three road authorities already referred to. The same is probably true of the unlabelled pit P33, which is in line with a long series of 'Gravel' diggings on the largest tributary floor. The other two unlabelled pits, P29 and P34, are probably solution hollows.

The EDHB, whose probable pits have been identified above, was created in 1864 and, on

<sup>39</sup> SHC: 6065, boxes 1–3, 12 January 1909.

the expiry of the RTT in 1882, became responsible for the turnpikes along with its other roads. The EDHB continued with extraction from Hogden Bottom. Payments from 1866 onwards are recorded to suppliers such as Muggeridge, Chitty, Oakshott and Russell, who in later years are noted as supplying flints from the Bottom, although sources are not included in the accounts at this date. An entry in the EHDB's minutes in 1883 notes that the footways by the main road in Burgh Heath and from the Wheatsheaf to Banstead Downs 'have been covered with gravel from Hogden Bottom'.<sup>40</sup>

In 1883, the first recommended tenders to specify the names both of suppliers and of their sources refer to two suppliers of flints from Hogden Bottom, Tugwell and Harber, for six named local roads, including the parts of the Reigate and Dorking roads within the survey area.<sup>41</sup> The tenders accepted for the following year list nine roads, with the suppliers Wood, Harber and Oakshott 'carting Flints from Hogden Bottom'. These tenders are presented in similar format until the Board's dissolution, with some suppliers' names appearing regularly.

The EHDB's statutory right, inherited from the Turnpike Trust, to extract road materials from commons without payment was confirmed by a challenge in May, 1894, when the newly created Banstead Commons Conservators attempted to establish a precedent by asking the Board for a small royalty for the digging of flints. The Board responded by citing its legal rights. The Conservators then stated that they were not seeking to restrict the digging but asking for compensation for the damage done in obtaining the flints and carting them; having taken legal advice, they withdrew.<sup>42</sup>

The ERDC, created in 1894, continued with the extraction of road materials from the heaths, and over a wider area.

The 1912 edition of the 1895 revision of sheet XXVI.2 (the northern part of the heath) shows no differences in the pits except that Constable's gravel pit P1 is omitted. Possibly, even as early as this, road-widening had all but obliterated it (its remains today are vestigial).

The 1912 revision of both maps shows two new pits, both in the northern part, P17 and P23a, both of which are probably manorial and are dealt with below. The 1933-4 revision of both maps shows four new pits (P4, P7, P9 and P10a) and one small enlargement (to P23a), all on the northern map. The four new pits can be ascribed to the ERDC.

The construction of roads at the turn of the 20th century still demanded large quantities of flints (and even, in continuance of old techniques, brushwood, furze, etc. for drainage). In 1904, for example, the suggested specification of a new road in Cobham was that it should be 40 feet wide overall, with 24 feet of actual road, that the earth should be thinly covered with faggots or brushwood, that there should be a hardcore foundation 8 inches thick, and a coating of flints 6 inches thick, thicknesses to be taken after thorough rolling and consolidation.<sup>43</sup>

About a dozen tenders were accepted by the Highways and General Purposes Committee every year until just before the First World War from regular local suppliers (Penfold, Oakshott, Smith, Beadle, Muggeridge, Chitty, Smith, Shove, Russell, Burtwell) and occasionally others for 'Carting Flints [and gravel, or fine gravel] from Hogden Bottom' to various roads in the council's area, and sometimes for 'Carting to lay on' over various distances of road. The suppliers' names are found as recipients of payments in the Treasurer's accounts for the ensuing year. In September 1900, the Conservators expressed concern at the 'extensive digging of flints' for the repair of roads and the resulting dangerous excavations.

From 1903, however, several factors began to result in a gradual reduction in purchases of flints and gravel from small local firms. New materials began to be used, such as granite chippings and, by 1914, tar (supplied by the Epsom and Leatherhead Gasworks).<sup>44</sup> A general increase in road-building and construction and the spread of the railways resulted in the

<sup>40</sup> SHC: 6070/1/1-5, 29 August 1883.

<sup>41</sup> *Ibid.*, 9 May 1883.

<sup>42</sup> SHC: 6065, boxes 1-3, 4 May, 12 June, 10 July, 13 November 1894, 8 January, 14 May 1895.

<sup>43</sup> BHL: ERDC, 30 August 1904.

<sup>44</sup> *Ibid.*, 1914-15.

growth of large firms, located in parts of the country with huge natural resources, supplying councils with a wide range of building materials which were delivered in bulk to local railway stations with attendant economies of scale; by 1909, flints and gravel, along with hoggins, shingle, sand, grout, etc., were regularly bought by the ERDC from these sources. (In the 1920s, the council was buying materials from companies such as East Surrey Gravel Pits, Abdon Clee Stone Quarries, The London Granite Co, British Macadams, Carreg-y-Llam Quarries and Mowlem.<sup>45</sup>)

The increased labour costs of the period affected small firms more seriously than large ones. In 1913, all but two of the usual local tenders for flints from Hogden Bottom were too expensive for the council to accept; in 1914, only one supplier from Hogden Bottom (Oakshott) was able to offer a competitive tender; in 1916, when the effects were beginning to be felt of a wartime shortage of manpower and a consequent rise in wages and prices, the council's surveyor reported that he had been 'unable to secure any further tenders for the carting of flints'; in 1917, 'very few tenders were received for Dug Flints, Gravel, Sand', and those that were received were too high for acceptance; and in 1918, the council for the first time decided not to advertise for tenders at all, but to use its own workmen to dig flints to supplement those now being delivered by railway.<sup>46</sup>

In March 1920, the council's surveyor built temporary narrow-gauge tram-rails 'near the Millfield' for hauling gravel in four skips by traction engine<sup>47</sup> showing that digging was going on in the upper parts of Hogden Bottom, and in August he started to make, until the Conservators stopped him, a road for the removal of road material along a track from the Brighton Road opposite the Old Vicarage south-west towards the back of the schools; at the time, this was 9 feet wide, 80 feet long and up to 2 feet deep in places, and was to be metalled.<sup>48</sup> The pits aimed at may have been P18–20 or the general area around P20, which still shows much evidence of superficial working. In September 1920, he reported that he had started seventeen men in Hogden Bottom digging flints, pebbles, gravel and sand,<sup>49</sup> and later the same month he reported, in response to a letter from Banstead Parish Council drawing attention to the need for repairs to certain roads, that he was 'having material carted from Hogden Bottom for the repair of these roads [...]. To properly repair the roads referred to some 3000 or more yards of material will be required and it was in Hogden Bottom that I had hoped to dig all that was required.'<sup>50</sup>

The use of the word 'hoped' is significant: unsurprisingly after 160 years of continuous extraction, the flints themselves appear to have begun to run out, at least as an economic proposition. Six years previously, in 1914, the surveyor had referred to the difficulties of obtaining them. The large number of men employed is not an indication of the richness of the source but of the fact that all local men out of work who applied to the council for a job were employed in digging.<sup>51</sup> In November 1921, although the surveyor still had fifteen men digging flints in Hogden Bottom, he reported that 'I have been in communication with the Clerk to the Conservators respecting an extension of ground and he suggests we dig on the south side of the Bottom' – and the Conservators' minute for 22 February 1921 shows that this meant the north side was exhausted. 'I do not know whether we shall get sufficient flints to justify the work but we will do a little exploration work before your next meeting.'<sup>52</sup>

<sup>45</sup> Eg SHC: 6070/3/37–8, 31 March 1926.

<sup>46</sup> BHL: ERDC, 1913–18.

<sup>47</sup> SHC: 6065, boxes 1–3, 11 May 1920. The council had adopted rails in an attempt to avoid the damage done to the ground by horses and carts – cf the complaint, referred to below, received by the Conservators in 1925 from the occupant of Castle House. They were referred to as being laid 'over' the wartime trenches (or the remains of filled ones), the Conservators suggesting planks as an alternative.

<sup>48</sup> SHC: 6070/3/37–8, 1 September 1920; 6065, boxes 1–3, 30 August 1920.

<sup>49</sup> SHC: 6070/3/37–8, 1 September 1920.

<sup>50</sup> *Ibid*, 29 September 1920.

<sup>51</sup> *Ibid*, 24 November 1920.

<sup>52</sup> *Ibid*, 23 November 1921.

This is the last reference to extraction from Hogden Bottom in the records of the ERDC and also of the council's next two successors in responsibility for the area's roads, the SCC (1930–33) and the Banstead Urban District Council (BUDC) (1933–74). Excavation by the latter did continue for some years, however, as is shown by a complaint received by the Conservators in 1925 from the occupant of Castle House on the Dorking Road about damage to the ground near his house caused by 'extensive operations in connection with gravel digging by the District Council' – ie in the upper parts of Hogden Bottom.<sup>53</sup>

Hogden Bottom was clearly a prime site, but there were others. The Conservators complained in August 1920 that the council had caused 'serious damage and disfigurement' by 'the opening and working of new pits on a large scale over widely separated areas on Banstead Heath [...]. It was decided that the working of flints, gravel and sand by the council on the present scale must cease, and that the Conservators should exercise their powers under Section 20 of the Metropolitan Commons Act 1876 with a view of ensuring that such work should in future only be carried on in a manner and to an extent approved by the Conservators'.<sup>54</sup> The council's response was an explanation that in the past gravel-digging had been done at piece-work rates and 'the men had gone from place to place seeking spots where material was plentiful and that it was now proposed that the work should be done by the hour, that when a pit was opened it should be exhausted and then filled in, and that the site of each pit should be agreed by the Board'.<sup>55</sup>

If the council, in its rather desperate search for flints, was opening and working 'new pits on a large scale over widely separated areas', they were almost certainly responsible for pits P4, P7, P9 and P10a which are some distance from Hogden Bottom, not shown by the OS map in 1914 and make their first appearance on the 1933 revision. If the 1920 proposal regarding new pits was adhered to, it is reasonable to suppose that these four pits were opened after the OS revision of 1914 and could have been exhausted (but, as old pits, not filled in) by 1920.

The conclusion to be drawn from these statements seems to be that any mapped or existing pit on the common unattributable to other agents could well have been excavated by the ERDC before September 1920. If the council carried out its stated intention, pits dug after 1920 would have been filled. The only council digging after that date was apparently on the south side of the Bottom, but as no new pits are shown in this area, it was presumably superficial and more or less fruitless.

Much filling of pits with spoil, refuse, old iron, etc. by the BUDC, especially in Hogden Bottom, took place before and after the Second World War.<sup>56</sup> The Conservators resolved to stop this in 1950 'as pits are part of the Commons' beauty and good playgrounds for children'; it continued, however, into at least the 1960s.

In 1949, the Conservators inspected the pits 'between Dowding and Hedge Corner in which the Banstead Council has been depositing soil and other material'. The two pits which were nearly full were to be levelled off with soil; one other pit 'in which old tins and iron had been collected should have sufficient soil tipped in it to cover the rubbish'. Further tipping was to stop except for agreed specific occasions.<sup>57</sup>

In 1950, the council proposed tipping soil 'in the chalk pit on Banstead Heath at the Brighton Road end of Hogden Bottom' (P23a).<sup>58</sup> The Conservators did not approve this, but having inspected the pits in Hogden Bottom, the one 'about half way between the Brighton Road and Dowding' (P21) was selected as suitable; soil deposits were to be started at the top (this pit was on a slope) and levelled as the work proceeded. The filling was completed in 1964 and a bank was to be built to stop further access.<sup>59</sup> A depression can still be seen.

<sup>53</sup> SHC: 6065, boxes 1–3, 20 July 1925.

<sup>54</sup> *Ibid.*, 30 August 1920.

<sup>55</sup> *Ibid.*, 29 October 1920.

<sup>56</sup> *Ibid.*, 1948–63, *passim*.

<sup>57</sup> *Ibid.*, 25 June 1949.

<sup>58</sup> *Ibid.*, 25 May 1950.

<sup>59</sup> *Ibid.*, 17 October 1964.

*Manorial pits*

(Possible pits: P8, P11–20, P23, P23a, P25–33 and P35–40.)

Following the bankruptcy of the lord of the manor, Sir John Craddock-Hartopp, during the commons enclosure case,<sup>60</sup> his mortgagees, the trustees of Lady Lavinia Bickersteth, attempted to go some way towards recouping the loss of their £31,000 loan by exploiting their rights over the soil of the common as far as possible<sup>61</sup> – and to an extent later alleged to be excessive by the plaintiffs. The Receiver's accounts<sup>62</sup> show that between 20 February 1885 and 7 March 1888 there was extraction of nearly 1000 cubic yards of flints and 1260 cubic yards of gravel from the various commons, including 327 from Hogden Bottom. (These items, however, together with large quantities of loam and turf and small quantities of peat, bracken and heather, raised less than £1000.) Some of the purchasers of the flints and gravel, eg Muggeridge, Russell and Shove, were suppliers to the Highways Board; gravel could also be sold for general construction purposes, eg track beds, foundations and general fill.

In 1907, reference was made in a Conservators' meeting to a 'dangerous' gravel pit on the footpath from Dowding Castle to Hedge Corner, with the implication that this is a new digging close to the path.<sup>63</sup> While the Conservators usually name parties guilty of actions of which they disapprove, it is noticeable that when silence is preserved on the subject it usually means that the person responsible is the lord/lady of the manor (at this time Lady Russell), whose agent was a member of the Board. The next OS map (1914, sheet XXVI.2) is remarkable for omitting, like its successors, almost all previously recorded pits (including any indication of the very existence of Hogden Bottom), but it does show a new pit in precisely the place referred to, close to the footpath from Dowding Castle to Hedge Corner. P17, therefore, can almost certainly be ascribed to Lady Russell.

*Other extractors*

From 1527 onwards, numerous prosecutions are recorded for extracting gravel, sand and loam from common land in the parish of Banstead, either because people are doing so in excessive quantities or because they belong to another parish.<sup>64</sup> In 1793, for example, one Robert Ladbrooke of Gatton was prosecuted for carting away 3000 loads of gravel and sand.<sup>65</sup> This large amount of extraction (half that quantity of gravel would cover nearly five miles of turnpike by the Trust's standard) would have left obvious evidence in the form of pits, but it is not clear whether the common land concerned is Banstead Heath. The source of the sand, for example, is more likely to have been the deposits in Burgh Heath. If the source of the gravel was Banstead Heath, the most direct route from Gatton is via the south-eastern corner of the survey area, at Mogador or just north of Colley Hill, so it is just possible that some of the pits P35–40 in the southern part of the area (either side of the parish boundary) may be his. Because of the links to the documentary evidence as described above, however, the road authorities and the manor remain, with varying degrees of certainty, the most likely excavators of the mapped pits in the survey area.

## EXTRACTION OF FLINTS AND GRAVEL FOR BUILDING

The digging of flint from the common for building has taken place over a long period, and flints would also have been gathered from the surface. Flint masonry was discovered on the

<sup>60</sup> Currie 2001, vol 1, 2.6.

<sup>61</sup> Page 1985; SHC: 187/2/55.

<sup>62</sup> SHC: 187/2/56.

<sup>63</sup> *Ibid.*, 24 July 1907.

<sup>64</sup> SHC: 187/2/55.

<sup>65</sup> *Ibid.*

site of both the Walton and Walton Heath Romano-British villas<sup>66</sup> and flints lined a large well near the latter which may have been of the same period.<sup>67</sup> Many flint buildings have survived in the areas around the common, including the Walton and Kingswood parish churches; others which have not include the Tadworth schoolhouse on the Brighton Road, demolished in the 1960s. Flints for the construction of Kingswood Church in 1841 may have come from P19.

#### EXTRACTION OF CHALK

Pits P23, P23a, P23b and P24 are at points where the chalk has been exposed below the cap of Clay-with-Flints. There are only two chalk pits in the survey area which are named as such on the map (OS sheet XXVI.2: P23 (1896, 1912)), overlooking Hogden Bottom near the Brighton Road, and P24 (1877), on the other side of the heath on the west side of the Dorking Road. Both are now on private property ('Pitt Cottage', in the case of the latter), but were originally on common land and would have been exploited mainly for agricultural purposes.

Pit P23 was originally, in 1877, named a gravel pit, but was renamed a chalk pit on the 1896 revision, which would seem to indicate either a correction of an error or a change of function; by 1914 it had been extended on the map into the neighbouring pit P22, which was named as a gravel pit on the 1877 and 1896 maps, to form the larger P23a which is unnamed. Although the latter is drawn to look like one pit, it is really today still two which are at the lower end of a series of pits, unmarked on any of the maps, situated on the steep slope down from the heath into Hogden Bottom. This is a geologically mixed area, the chalk appearing below the cap of Clay-with-Flints and then giving way to more flints in the Bottom. It is noticeable that the flora on the slope into the Bottom beside P23a are calcicole varieties, quite unlike those only a short distance higher up where typical heathland vegetation begins. The owner (in May 2001) of the Clocktower Stables (immediately north of P23b, between the edge of the survey area and the Brighton Road) has stated that whereas on the heath behind the property the ground is too stony to dig down easily more than about a foot, the stables site, which is cut into the rise of the heath at the back and only about six feet below it, was excavated into chalk.

This seems to indicate that the OS may be correct over P23: it may be that P22 was always a gravel pit but that the slightly lower pit P23 started life as a gravel pit and between 1877 and 1896, when the layer of gravel ran out, was excavated for chalk. (In 1950, the Conservators refused permission to the BUDC to tip soil into P23, but it has apparently been partially filled since.)

A mixture of materials may also have been found in P23b, Killick's pit, about 25 yards from P22. This is named as a gravel pit (paired with P22) in the 1896 revision, and is semicircular. Today, only the northern half of the semicircle remains, 30–40 feet deep, the sides being clay with gravel and flints (although some of this may be spoil tipped over from the neighbouring property); it is possible that chalk was dug from the lost southern half, since chalk is found at the same level about 30 yards away behind the flint-walled house in the same grounds, but it is equally possible that the pit was excavated into a bowl of pure gravel and flints.

P23a can be ascribed to manorial excavation with relative certainty. In February 1899, the Conservators' minutes refer to a chalk pit which has been excavated on Banstead Heath in dangerous proximity to a footpath behind Tadworth Board School; the excavator is not named, which as noted above suggests in itself that it was the lord of the manor, and in September it is reported that the lord of the manor has erected a fence around the pit, so it

<sup>66</sup> Pocock 1864, 5; Lowther 1950, 72, 76.

<sup>67</sup> Manning & Bray 1804–14, 2, 645.

can be safely assumed that he was indeed responsible. This pit seems to be what had been P23, which was possibly begun by a previous lord of the manor,<sup>68</sup> and the reference to record the start of its extension into what became P23a. There was a market for chalk for building purposes, general fill and marling.

Twenty-three years later, the manor apparently returned to the spot. The Conservators' minutes for 5 October 1922 record that the path along the edge of the chalk pit in Hogden Bottom has been 'undermined by recent excavations' and that the fence has fallen. In the following April, significant extra detail is given: excavations 'on the west side' of the chalk pit have brought down the fence on that side and encroached on the path; the Clerk to the Conservators has written to the lady of the manor asking for the fence to be re-erected and for future digging to be limited to the north side of the quarry.

The OS map sheet XXVI.2, revised 1933–4, clearly shows that Pit 23a, already shown in 1914 as having swallowed up the previous 'Chalk Pit' (P23) and its neighbouring small gravel pit (P22), has been extended on the west side and has encroached on the path. It is clear, therefore, that there was a continuing manorial factor in major extraction from the common as late as 1923. Although the ERDC's surveyor was also searching for flints in the immediate vicinity at the time, the Conservators are here dealing with the lady of the manor alone as responsible for excavations and fences.

#### EXTRACTION OF LOAM

Loam was in demand mainly by nursery gardeners and private individuals for flower-beds, but could also be used in brick-making and patching walls.<sup>69</sup> The extraction by the Hartopp mortgagees was from the top 9 inches of the surface from various parts of the common,<sup>70</sup> and there is no reason to think that deeper extraction took place before or later, which means that few or no permanent traces will have been left. A map, prepared by the plaintiffs' lawyers and produced during the case, showing the areas of loam and possibly other extraction, has not been traced. Hartopp himself made about £400 from topsoil in 1873. The Receiver's Account in the later *Abingdon v Hartopp* case shows that between 20 February 1885 and 7 March 1888 there was extraction of 2238 loads of loam (also 22,775 curves – used mainly for lawns – from Walton Heath and 25,600 from Banstead Downs).<sup>71</sup>

The digging of loam was continued by Lord Abingdon as lord of the manor. The Conservators could do nothing about this, although in 1898 they voiced their concern as guardians of the common's surface at the large amounts being removed, and in 1894 they had prosecuted a Mr Harber, who may have been one of the Board's regular suppliers of flints, for excessive digging.<sup>72</sup> Their concern was understandable: by 1913, the lord of the manor was carting off over 1000 loads of loam annually. The digging dropped markedly during the First World War, and in the early twenties was at about half that rate; between 1933 and 1938 the annual average was only 85 loads. An area of 2250 square yards in Hogden Bottom was dug for turf and loam in 1948 by Burtons of Walton-on-Thames with the lord of the manor's permission.<sup>73</sup>

Manorial extraction of loam continued until May 1960, when the Banstead Urban District Council announced that it had bought the manors of Banstead and Tadworth and had stopped the practice.<sup>74</sup>

<sup>68</sup> SHC: 6065, boxes 1–3, 14 February, 12 September 1899.

<sup>69</sup> SHC: 187/2/55, 23, 63.

<sup>70</sup> SHC: 187/2/55, 3, 63.

<sup>71</sup> SHC: 187/2/56.

<sup>72</sup> SHC: 6065, 13 December 1898, 10 July 1894.

<sup>73</sup> *Ibid.*, *passim*: head keeper's monthly figures.

<sup>74</sup> *Ibid.*, 7 May 1960.

## Conclusion

Apart from a relatively small amount of (mainly manorial) extraction of chalk, sand and loam for agricultural, building and horticultural purposes, most of the extraction from the mapped pits on Banstead and Walton Heaths was of flints and gravel for the construction and maintenance of roads, both on the heaths and in other local areas. By far the largest source of flints and gravel was Hogden Bottom and its tributary valleys, and the main extractors were the RTT (1755–1882), the EDHB (1882–94) and the ERDC (1894–1930).

Comparing the evidence from the minutes of the Trust concerning the names, location and payments of the carters employed with that relating to the standard quantities of flints and gravel the Trust used on the roads has enabled three pits on the Brighton Road (one outside the area of the heaths), as well as Hogden Bottom, to be identified with reasonable confidence as the source of the materials for the building of the Brighton Road turnpike beside the heath, 1755–6. Two pits on the same road can be similarly associated with the improvements made to Woodhouse Hill and the road at Braggart's Pond by the road engineer and Trust's surveyor, William Constable, in the early 19th century. The Dorking Road or Pebble Hill turnpike was constructed by annual statutory labour to a standard inferior to that of the Brighton turnpike, probably in anticipation of its lighter traffic and the financial failure it became. Although begun in 1755, at approximately the same time as the Brighton turnpike, it took nearly twenty years to complete as opposed to the latter's twelve months. The sources of the flints and gravel for its construction were almost certainly Hogden Bottom and probably the pits near the large earthwork in the north-west corner of the heath. The main topographical features of the two roads in this area as they exist today are the results of Constable's improvements to the Brighton Road, the Trust's decision not to proceed either with his recommendation for the levelling of Wilderness Hill at Tadworth Hospital or, in view of the expected competition from the proposed London to Brighton railway, a scheme for the reduction of the gradient at Pebble Hill.

The early years of the 20th century saw a gradual decline in the purchase of flints and gravel from local firms, and from about 1914 the deposits themselves began to run out. No references to the extraction of flints and gravel have been found after 1925, although manorial extraction of loam continued until 1960.

Of the 50 mapped pits, twelve can be ascribed with varying degrees of certainty to a particular road authority or the manor, and can be given an approximate date. These extractors are also likely to have been responsible for all the remaining pits apart from two probable solution hollows.

## Endnote

The table below is available on the Archaeology Data Service website (<http://ads.ahds.ac.uk/catalogue/library/surreyac/v91.cfm>). Copies of this material will also be deposited with: the Society's library, Guildford; Surrey History Centre, Woking, and the Surrey Sites and Monuments Record, Kingston. Photocopies can also be supplied by post – enquiries should be addressed to the Hon Editors, Surrey Archaeological Society, Castle Arch, Guildford GU1 3SX.

TABLE 1 Map details, location, probable origin and present condition of pits on Banstead and Walton Heaths.

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