

A SURVEY OF A MINE IN TEARSALL ROUGH, WENSLEY

by

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Situated near the top of the hillside south of Wensley, the mine is best approached by following the cart-track that leads northwards from Brightgate past Tearsall Farm towards Wensley. After crossing a prominent ridge, a large enclosure (Field 443) known as Tearsall Rough is entered. This area has been intensely worked for lead and during the early 1960s three small opencasts were made for fluorspar, two of which were on the outcrop of a north-south pipe vein on the east side of the track. Both of these excavations intersected old lead workings just beneath the surface but those in the more southerly cutting were very small. In the northern cutting the workings were breached at three points, allowing access to a system containing about half a mile of passages that forms the subject of this paper.

The accompanying survey was made by Andrew Hayes, John Swain, Jerry Corson and the author and represents the situation prior to the recent reactivation of the fluorspar opencasts by C. E. Giuliani (Derbyshire) Ltd. When last visited in July 1974, access to the workings was still possible although the proximity of the excavators appears to be causing a deterioration in their stability.

Early in 1974 Jim Rieuwerts contacted the Society about the threat to this mine which is well known for its extensive ore washing floors. As a result several Society members made a detailed record of the buddling system with the co-operation of C. E. Giuliani Ltd., which will be published in a later paper by Lynn Willies.

### Geology

In this vicinity the miners exploited a series of closely spaced pipes ranging roughly north-south and connected at some points by flats developed beneath a wayboard. All these deposits have been controlled by the bedding of the country rock (locally dolomitized Lower Matlock Limestones) which dips at up to 40° ENE so that the pipes lie roughly along the strike. Both the pipes and flats appear to be limited in occurrence to the extent of the penetration of the dolomitization down dip. The infill consists partly of fluorspar but calcite is dominant, occurring both in masses and as poorly formed scalenohedral crystals with flat rhombohedral points. Galena is present in stringers, disseminations and isolated masses; imperfect combinations of octohedral and rhombododecahedral crystals were noticed in the south cutting. The flats are developed under two thin wayboards and contain mainly calcite so that they were of little interest to the lead miners. A six inch thick coral bed is adjacent to the two wayboards and outcrops in the north cutting. Two scrins intersect the east side of the workings, ranging NE-SW and consisting of barite, calcite and galena.

### The Underground Workings

A subsidence hollow west of the northern cutting contains a small opening from which an unstable slope descends 12 ft. into a short pipe-working but this has never connected with the main series.

In the top SW corner of the cutting there is a 20 ft. deep shaft, roughly ginged, which leads into the main system of workings so that its foot can easily be reached by a different route. The other two entrances are crawls lower down the south face of the cutting and join together a short way inside. Near the western entrance there are several packed cavities in the roof, extending remarkably close to the surface. Beyond the junction of the crawls the passage opens up rapidly into an easy walking level running southwards along the pipe. The roof is a sloping wayboard and the right wall is partially packed. A tight crawl off to the left dips into a low parallel working bounded by a series of chokes. 13 ft. beyond this a low crawl at the back of the pack in the right wall brings one into a pocket 6 ft. square doubling back to a collapse near the cutting.

The 8 ft. high level soon leads to a junction where there are three short pockets on the left in addition to the w <sup>e</sup> slope up the bedding to the right which gives access to a small series of crawls. However, the main continuation from the junction is a 3 ft. deep walled-round hole in the floor from the foot of which a 4 ft. square chute descends steeply dip into the Second Level some 16 ft. below. The chute has partially packed sides with a 2 inch thick wayboard in the floor and a 1 inch wayboard 18 inches above this. Part way down a crawl leads off northwards, emerging in the roof of the Second Level after 10 ft.

The Second Level is 8 ft. high by 4 ft. wide, with a packed east wall and an impressive bedding plane roof. After only 7 ft. in a northwards direction this passage turns sharp left and an opening straight on at the corner above a large pack just gives access to a 15 ft. long crawl with a wayboard roof and a rubble floor. The passage off to the left here drops 5 ft. and quickly turns northwards again, passing a neatly walled-round crawl (see below) low down on the right in one of the packs that line both walls. The workings in this vicinity lie directly beneath the entrance level and are shown separately on an inset on the survey. The continuation of the level closes down to a crawl up a rubble choke into a cross-passage where it enters the workings from the shaft in the cutting. The left fork at this point is a 4 ft. high slope up to the base of this shaft.

The right fork leads down through a rubble choke to the bottom of a 20 ft. high raise, 2 ft. square in section and roughly picked in solid rock. At its top there is a small chamber, 3 ft. high, with a very narrow crawl ranging northwards through a pocket to end in a rabbit hole down which air flows from the surface in summer. This crawl is situated just beneath the floor of the workings inside the more westerly entrance where there is an abundance of rabbit holes.

Continuing downwards from the raise past two small openings on the right (both of which enter a stope described below), one reaches a vertical drop of 5 ft. into a lower passage. The workings extend in a northerly direction at this lower level for about 70 ft. and a collapse part way along at a gap between the packs in the right wall may indicate the site of a run-in surface shaft.

A passage in the opposite direction from the bottom of the 5 ft. drop breaks into a large stope where several high level pockets can be entered and openings double back to near the raise noted above. Turning to the right, the stope closes down to a 3 ft. high crawl with an 8 inch square, clay-lined channel in the floor which was part of the buddling system but is now completely dry. This water channel turns along an opening in the right wall into a parallel passage only 2 ft. high which continues to rise steadily southwards until it rejoins the workings described earlier at the neatly walled-round opening. Just before this, the water channel ends and the parallel workings on the left merge in as a low crawl.

Returning to the stope, a passage off to the east drops steadily with an irregular cross-section. The water channel also extends in this direction and when 35 ft. from the junction two small troughs are reached. In this area the passage follows a 2 inch scriin of calcite and galena with adjacent replacements of calcite. There is a cross-roads shortly beyond the troughs where the two turnings are located above 6 ft. high packs on each side of the level. That to the left is a short crawl but on the right a passage leads southwards along a 1 - 2 inch wide natural fissure with adjacent calcite replacements containing disseminated galena. A wayboard is cut in the roof after which the passage follows the bedding. Having passed through a short crawl, this working splits when 70 ft. from the main level, the right fork dipping slightly to end in a small pool of water while the left fork is a tight crawl rising steeply into a small pocket. The forefield here must be within a few feet of the floor of the Second Level.

Beyond the cross-roads the main level continues downwards past a small deposit of laminated sand and emerges at the top of a 10 ft. vertical drop into the upper end of the Third Washing Floor. There is an extension at this altitude from the west corner but the intervening floor was removed when the chamber was excavated and it was not entered by the surveying party.

Returning to the foot of the chute into the Second Level and heading in the opposite direction, a very spacious passage leads southwards. A tight pocket in the floor on the right has apparently been dug out at a relatively recent date for some obscure purpose. Eventually this section of the Second Level is completely blocked by a collapse of red clay and rubble shortly beyond a junction where there are three short workings off to the right and also an opening on the left. The latter is a low rubble slope descending through a calcite flat 2 ft. thick into the First Washing Floor.

This is a small chamber crossed by the Third Level which follows the far wall. In the SW corner there is a 24 ft. deep shaft, 3 ft. by 2 ft. in section with a heavily packed south wall, which was descended by Lynn Willies. From its base a 4 ft. high passage runs directly beneath the Third Level along a 1 inch barite - calcite scriin. To the SW this passage rises in a series of steps but ends after about 30 ft. In the opposite direction there are two short workings as shown on the section. In the lower of these the shot-holes meet just before the collapse, indicating that the continuation was driven from the Third Level, perhaps joining the unsurveyed part of the stope workings (see section). The higher level was similarly driven towards the shaft and may have connected through to a collapsed working in the floor of the Third Level.

Near the back wall of the First Washing Floor there is a small trough on the course of the Third Level which extends southwards from here as a steep upwards incline 6 ft. high with a large channel in the floor leading down to the trough. Besides collecting water for buddling, the channel acted as a guide for a wooden sledge that was found lower down the Third Level (see below). At the top of the incline an extensive muddy collapse zone slopes up on the right and this probably once connected with the choked end of the Second Level. Logically the main entrance shaft for these workings should be in this vicinity but no trace of it was noticed. From here the Third Level is horizontal and ends after passing a similar but smaller collapse zone.

The Third Level runs NE from the First Washing Floor with a parallel working on its left side. The passage here is 4 ft. square, heading down dip with the sledge channel still in the floor. Some 15 ft. beyond the chamber a partially collapsed area is entered where a working back in the floor has run-in and there are also several large loose blocks in the roof. The parallel working noted above soon merges into the left wall and shortly afterwards a fork off to the left leads into a large stope running parallel with the Third Level.

The workings in the stope are rather complex and reference should be made to the section inset on the survey. The floor of the stope is some 6 ft. lower than that of the fork off the Third Level. To the NE the stope is divided by a 1 ft. thick false floor, once supported by thin wooden stemples which have now fallen out of place. John Swain demonstrated his faith in this example of anti-gravity by vigorously stamping on the false floor but this is not recommended. The lower passage here descends rapidly through a sudden cork-screw to the right and doubles back directly underneath the stope with a height of 8 ft. and ends naturally. Surprisingly its roof is nearly all solid rock with a 1 - 2 inch barite and galena scriin visible. The level above this in the stope is of similar dimensions but need not be entered as it soon emerges in the roof of the main workings.

Returning to the Third Level and continuing northwards, the sledge channel is again prominent until the passage enters a small chamber containing several large fallen blocks. The direct extension here is partly choked by a boulder collapse and it is best to turn left through the chamber into a packed level inset into the floor. The instability of this area is due to a 12 inch wayboard in the roof where the stope workings enter on the left. Following the packed level (6 ft. high by 2 ft. wide) down dip, another boulder choke is reached after 40 ft. where two openings both enter a passage 8 ft. down in the floor and slightly to the left. This lower level extends in both directions, doubling back under an insecure pack to an unexplored 20 ft. shaft shortly beyond which the forefield is reached with a 3 inch calcite - fluorspar - galena scriin. This section is 5 ft. high by 2 ft. wide.

Continuing northwards, the passage dips steadily with a pack in the right wall above which the foot of a shaft can be located; it is 4 ft. by 2 ft. in section and is blocked by a precarious mass of boulders 12 ft. up. The workings here are only about 50 ft. beneath the surface but the raise cannot have been important as the construction of the pack would have made it unusable. Further down the passage a shaft in the floor has run-in, forming a cone choke 12 ft. deep in loose rubbl.

Shortly afterwards a chamber (the Second Washing Floor) is entered where two troughs are situated. A wayboard is prominent in the chamber and immediately contiguous to it is the 6 inch thick coral bed that out crops in the entrance cutting. Two pockets open off some 12 ft. above the floor and that just to the right of the point of entry is a low crawl which intersects a natural fissure varying from 2 to 12 inches wide. Directly beneath this a 4 ft. high passage heads back southwards from the chamber with a 1 inch wayboard in the roof. It soon cuts into a 2 inch scriin of barite and galena, developing into a small stope 8 ft. high with an uneven rubble floor. When 80 ft. from the chamber the level passes under a 20 ft. high raise which is 4 ft. by 1½ ft. in section, with packing across the vein. Just beyond the shaft there is a 6 ft. deep pit on the right where a ½ inch barite - galena scriin forks off. The roof packs become more extensive and soon one reaches the foot of an unstable climb into a higher passage on the scriin (as represented on the section in the survey). Doubling back, the higher passage is an easy walking way, crossing the top of the 20 ft. raise noted earlier at which point there is a 5 ft. drop in the level of the floor. A total backfill is met after a further 25 ft. through an alluvial pipe deposit of gravel and red clay which was possibly a source of some of the material buddled in the nearby washing floors.

In the opposite direction (southwards), the high level workings are as indicated on the section. The survey was not extended beyond a large roof pack supported solely by one rotten wood stemple but Lynn Willies found that the continuation ends after only 30 ft. However, there is an air flow to the SW in summer into this section and there must be a connection through to the surface at a point lower than the shaft collar in the north cutting.

Back in the Second Washing Floor, the only exit not yet considered is a large passage off to the left of the point of entry which leads to a Y-fork. Here the left branch drops steeply, crossing a scrin where there is a short pocket off on the left with a larger working just above it. The continuation of the left branch flattens out and its height decreases from 8 ft. to 3 ft., with shallow pools of standing water on the floor. Shortly the bottom end of the Third Washing Floor is entered and this rises steeply up to the high level workings at its far end which have been described earlier. Details of the buddling system will be given in a later paper. The right fork from the Y-junction is a crawl heading down dip, partially backfilled with waste material from the washing floors. On the right at the junction a 6 inch by 3 inch channel leads into the bedding plane in the right wall to drain the excess water away. The end of this passage is the lowest point in the surveyed workings - some 100 ft. lower than the entrance in the north cutting.

In summer there is an air flow into the crawl entrances which circulates through the Third Washing Floor and re-emerges in the cutting from the shaft so that there are no ventilation problems.

#### Some Notes on the History of Lead Mining in the Tearsall Area

No historical records have been located which refer specifically to the surveyed mine system and the name under which it was worked is not known. The condition of the wooden sledge and the beam in the entrance level suggests that the mine was reworked quite recently.

In Bull. P.D.M.H.S., Vol. 1, Part 7, Nellie Kirkham gave a detailed account of the history of Tearsall Mine and it has frequently been accepted that this was the name of the mine described above, but various factors (including the shallowness of the workings here) make this impossible. An entry in the Barmaster's Books for 1862 pinpoints the site of Old Tearsall Mine: The Barmaster laid out a road from near the second gate south of the Brecks Barn on the Wensley - Brightgate track (i.e. the gate connecting Fields 431 and 443), ranging south-eastwards across "the rough Tearsall in the occupation of William Alsop" (Field 443) to its east corner. The road then entered Thomas Coates Rough Tearsall (Field 441) and, heading eastwards, crossed the Old Tearsall Title before terminating in the east corner of this field at the new dressing ground of the "Hit or Miss Mine". At this point there is a large buddling complex by a 50 ft. deep shaft (mistakenly referred to by Kirkham as an engine shaft with a pumping-channel) which confirms the destination of the road.

At the indicated site of the Old Tearsall Title there is a large tip with a 110 ft. shaft, 5 ft. by 3 ft. in section, on the NE - SW Tearsall Vein. Further down the hill on this vein is a superb engine shaft about 160 ft. deep and 6 ft. by 5 ft. in section at its collar. The tip here is also quite large and contains fragments of basalt. Tearsall Vein ranges uphill towards the surveyed mine but the absence of any major intervening workings suggests that it rapidly died out.

The earliest mention of Tearsall Mine is in an undated document collected by Chris Williams to be part of the practice papers of Edward Revell, attorney, 1563-1639 while internal information also enables it to be dated as pre 1633 (DRO. 184M/B1). This concerns a suit brought by Wendesley Blackwall against Anthony Bennett in the Duchy Court. Blackwall had six meers in Tearsall Rake and Bennett (together with two others) owned three meers nearby in the vein while an intervening meer (or meers) between the two titles was in dispute. Bennett alleged there was a branch vein out of the six meers called Needles Eye that had been claimed by Blackwall as Tearsall Rake. Apparently Bennett had been given permission to fetch water from one of the six meers for use in washing the ore in the three meers and Blackwell was claiming that the resulting sludge

had run into the six meers and hindered their working. Bennett counterclaimed that this had resulted from Blackwall washing "much rubbysh or sludge" in Needles Eye Vein which had occasionally run into the six meers. In addition Bennett said that Blackwall's miners had made a fire underground causing one of Bennett's workmen to be "smothered to Death" and endangering the lives of two others. It was also claimed that Blackwall had mined ore in Bennett's title and had intimidated the defendant's witnesses.

The outcome of the case is not known except that it seems the intervening meer became part of Blackwall's title. The ore washing details are particularly interesting with regard to the extensive buddling system found in the mine surveyed but these early workings were definitely much lower down the hill, in Field 441. Evidently there were at least ten meers staked out on Tearsall Vein which would be almost its entire length through Field 441. The founder shaft was situated somewhere in the six meers.

Kirkham's article gives a detailed account of the trial in 1635 about the working of a pumping engine at Tearsall Mine. The defendants in this suit were George Columbello and partners who had seven meers in Tearsall Vein by an agreement made with Blackwall. Columbello had brought in John Bartholomew, an engineer, to erect a pumping engine for which purpose an agreement had been signed in September, 1633. Bartholomew claimed to have "invented a new Engine for the Drayning up water out of mynes ... which tendeth to the publique good" and had received letters patent for this from the king in April, 1633. The engine had been set at a depth of 29 fathoms and towards the end of 1634 much ore was raised but during 1635 the dispute developed over who was to pay for the cost of conveying the water to the engine which was claimed to amount to about £8 per week while the engine itself cost £9 or £10 weekly to run. Columbello alleged that Bartholomew had broken the agreement by leaving the engine unattended about Michaelmas 1634 causing the mine to be flooded. Bartholomew retorted that "Columbell got him to an Alehouse & their tooke advantage of his Weakness". In June 1635 the court ordered Columbello to keep working the mine and arranged for Bartholomew's share of the ore to be sequestered. There was further trouble over this and the final outcome is not known except that it seems the pumping arrangements proved unsatisfactory and a sough was soon started (see below) (Woolley Mss Vol. 6678, pp. 289-298).

In 1636 the Earl of Dover and his partners petitioned the King, complaining of the conduct of Richard Carrier who, "upon pretence" of being the farmer of the mineral duties in Wirksworth Wapentoke, had claimed payment in kind from them (Woolley Mss Vol. 6686, pp. 322-323). The Earl and his partners had entered into articles for the draining and continual working, both night and day, of "Tersall" and Raventor veins (the latter is at Wirksworth) but they said that they would rather abandon these mines than pay the duty. In May the case was referred to the Lords of the Privy Council. Carrier admitted he had sublet the duties of Dovegang Mine (Cromford) to the mine owners and the Earl of Dover offered to enter into a similar arrangement over the mines in question but Carrier refused, although the Privy Council thought this to be a reasonable suggestion. Again the outcome is not known. The matter in dispute in this trial was whether the traditional duties of lot and cope should be paid by mines where severe drainage problems caused heavy charges for it was claimed this was a new development and not covered by the existing laws. The Earl of Dover had employed Bartholomew as engineer at Dovegang Mine and it seems likely that a similar situation existed at Tearsall.

In the Woolley Mss there is an undated and abridged copy of the composition articles for Tearsall Old South. The agreement was between Thomas Heale of London and, on the second part, William Horne and 20 of the other owners of mines in Tearsall Vein and an unspecified branch vein, both in Tearsall Pasture. The sough was to be driven from the "forefield of the Drift

that is now Cutt and made from the Swallow or Self-Open in the Dalefield". William Horne had been put in charge of Tearsall Mine in August 1634 and the articles would appear to date from c1640. The course of the sough is shown on a rough plan in the Bagshaw Collection (reproduced in Kirkham's article). Evidently it ran from the swallet near Northern Dale diagonally towards Dalefield Vein (discovered during the driving of the sough) which it followed for some distance before cutting westwards into the parallel Tearsall Vein.

Tearsall Old Sough is stated to be either 98 or 120 ft. higher than Dalefield Level and from this it can be inferred that it should meet the base of the 160 ft. Old Tearsall Shaft. Its continuation would either follow the top of the Lower Lava, losing level rapidly, or run through the lava into the underlying limestones. It would be interesting to locate this sough underground as it is apparently only pre-dated by Dutchman's Level, Vermuyden's sough from Dean Hollow to Dovegang Mine. Tearsall Sough did not have an outlet to the surface and Kirkham's suggestion that the sough tail in Wensley Dale is Tearsall Old Sough is mistaken. In fact this is Basrobin Sough which was being driven to Basrobin (or Rantertaker) Mine by 1767. Davis Sough is a branch of Basrobin Sough and when the former was put up for sale in 1783 it was described as nearly completed (Derby Mercury).

In 1666 there was a petition made to the Chancellor of the Duchy of Lancaster by the Earl of Northampton, the farmer of lot and cope in Wirksworth Wapentake, and Henry Greatorex, the deputy barmaster for Wensley. They complained that William Bache and others who owned land in Wensley, including the Tearsall area, were preventing miners from working there and had stopped Greatorex measuring ore by bringing a trespass suit against him. Greatorex said that he had used the usual track to reach the mine which lead from the Breech Gate (i.e. Brightgate) on Bonsall Moor past a pond to the "ancient Lead Mines & Groves commonly called Torsall Groves in the said Torsall Pasture and so unto Wensley Town". This had been laid out by the Barmaster for mineral purposes. It was stated that a "great store of Lead Ore hath been and still is there to be gotten". (Woolley Mss Vols. 6681 and 6685). Inevitably the verdict was given against Bache.

Dalefield Sough seems to have been driven 60 years after Tearsall Old Sough (i.e. c1700) and presumably ranged up Dalefield Vein with its tail north of the lower end of Northern Dale. In 1748 there is a mention of sludging the sough in the Dalefield Founder Meer which had become so silted up that the mines higher up were being hindered (Woolley Mss Vol. 6683, p. 259). In 1743 and 1766 agreements were made for the extension of Oxclose Sough to Dalefield Mine but this sough did not reach Oxclose until 1773 (Rieuwerts, 1966, 1969) and it is unlikely that it was ever continued to Dalefield.

In 1767 the London Lead Company were working Dalefield Mine and it was agreed that the Tearsall partners could open Tearsall Old Sough to give the water free passage to Dalefield Vein and they were also to be allowed to extend Dalefield deeper level to Tearsall Mine (Kirkham, 1962). The London Lead Company also owned other nearby mines at this time and in 1777 "Davis" and "Slack" mines were advertised for sale. In 1780 the Company of Mines Royal (a close associate of the London Lead Company) offered for sale all their mines in Wensley which included Dalefield, Old Tearsall, "Holewood Pipe" (= Hallwood Pipe, near Northern Dale), and Old Ash mines (Derby Mercury). The latter was drained by the Ash Sough branch of Tearsall Old Sough. Old Tearsall Mine must have been taken over sometime after 1768, forming a very compact title in this area. In 1790 the proprietors of Old Tearsall Mine were given permission to use the drawing shaft in Dalefield Mine but during a fifteen month period in 1793-5 only 21 loads 5 dishes of ore were measured, indicating that little mining was done.

During the 19th century a level was started with the intention of providing both a drawing gate and low level drainage for Slack Mine on Bonsall Moor but it was abandoned short of its destination (Rieuwerts, 1969). Its tail was reputedly at the lower end of Northern Dale and it may have been an extension of Dalefield Sough although Kirkham mentions two possible sites of sough tails in this vicinity. Slack Gate would have passed under the surveyed workings at a depth of 500 ft. from the surface and reached Slack Mine at 600 ft. depth.

In the 1860s - 1880s Edward Wass (of Millclose fame) purchased a vast number of defunct mines in this area including Old Tearsall, Dalefield, Hallwood Pipe, Old Ash and Hit or Miss; in April 1881 Slack Gate, Scolah Slack and Mount Pleasant mines were bought for a total of £3.15s. In June of that year his agent, Jonathon Stevenson, went with William Orme of Winster to examine a flooded mine in Gorsey Dale (near Brightgate) which was owned by Orme and Wass. They considered draining it by a level from an adjacent deeper mine owned by Wass (Slack Gate ?) but there were no developments.

In April 1882 Stevenson was instructed to examine the New Shaft on Slack Mine which he found to be 37 fathoms deep to the water. The distance was measured "from this Slack Shaft down to the Level Shaft at the Stile leading out of the Dalefields into Rough Tearsall 800 yds." The Level Shaft on Slack Gate would therefore be near the boundary of Fields 434 and 441; there is a large run-in shaft just inside Field 441 while a 250 ft. deep engine shaft is situated on Dalefield Vein in the centre of Field 434. Although an extension of Slack Gate was being considered, it was never completed and when Slack Mine was reopened in the 1920s drainage was by means of a steam engine that raised water in a flap-bottomed kibble (Jno. Stevenson's Diary).

Following the death of Mr. Wass, all his mines were put up for sale in November 1886, but the lead industry had collapsed and there were few purchases made (DRO. 161B/ES278).

#### Acknowledgements

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Woolley Mss.

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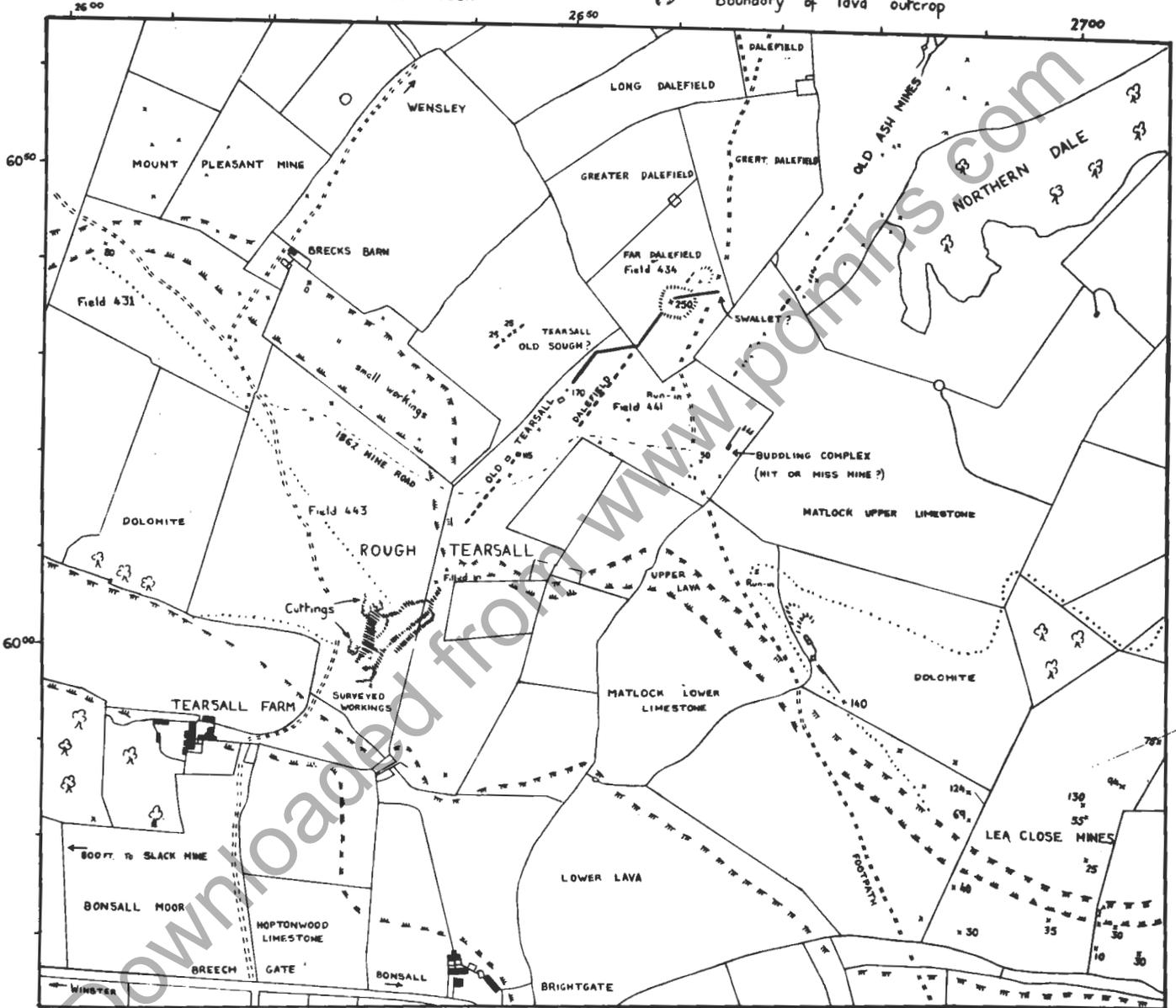
September 1974.



SKETCH MAP OF THE TEARSALL AREA, WENSLEY.



- ▲ Surveyed workings
- \* Shaft (some with depth in feet)
- - - 1862 mine road
- ⋯⋯ Path or cart-track
- Course of sough
- - - Vein
- ⋯⋯ Boundary of dolomite outcrop
- ⊖ Boundary of lava outcrop



ROGER FLINDALL AUGUST '74

