NEWSLETTER September 2025

Hello All, I trust you are well. It has been another busy month for me. The trip to Skinningrove was very good and everything came together as planned. I suffered a bit with “information overload”, but Nevile has come to the rescue with another brilliant Newsletter, and I can read and digest his report at my leisure. Thank you Nevile. Thanks must also go to Peter for his talk and an insight into his ingenuity.

We have started to fill next year’s calendar in, so if you have any suggestions for visiting speakers, please let me know. If you would like to present an evening at the Hungate Centre please step forward, ideally it will be a model engineering or technical content but you could surprise us!

We still do not have a General Secretary and have muddled through this last year, so this is another appeal for help. Any takers? You will have to be nominated, and accepted at the AGM in November, and that will soon be on us. Give me a call or email if you are interested, and would like any more information about any position on the PEEMS Committee.

If you are a relatively new member, and have not been to a *Mike Sayers Trophy* night yet, can I suggest you have a look at the October 2024 Newsletter on the website, and see what an interesting evening it was last year. The September Newsletter should be published just before the *MS Trophy* night in the Hungate Centre.

The *Clarkson* Cutter Grinder is installed in the workshop and is almost completed. The next step after completion will be for Paul to show us how to use it properly. I envisage two or three people at a time, but all this will be sorted out in due course. It will be up to you to touch up your own cutters, not to ask Paul to do them for you.

That’s about it from me for the moment, take care everyone. Kind regards, *Jonathan*.

- **Forthcoming Events.**

- **Wednesday October 1st** **Mike Sayers’ Trophy Night and Autumn ‘*Bring and Brag’*.**
- **Tuesday October 21st** **Workshop Morning.**
- **Friday November 7th** **Annual General Meeting. (Friday Lunchtime ~ 11am start).**
- **Tuesday November 18th** **Workshop Morning.**
- **Wednesday December 3rd** **Pre- Christmas Social.**
- **Tuesday December 16th** **Workshop Morning.**

Further Items Available From Club Workshop Tidy-Up. A little workshop tidy-up unearthed this wedge type quick change tool-post and holders, loco wheels and a vertical digital readout. Any offers for the workshop kitty?
I will take them to the Hungate Centre for the Club meeting on Wednesday 1st October, to allow closer inspection.

Jonathan

- **Club Evening On Wednesday 3rd September. "*My Milling Machine*". A Talk by Peter Bramley.**

Jonathan welcomed everyone to the meeting. There was a good turnout and three guests. There was Paul, who works on heritage aircraft at *The Yorkshire Air Museum*, there was Brian who was living in France but is moving to Thornton Dale with his son-in-law Robert, and their interest was steam locos.

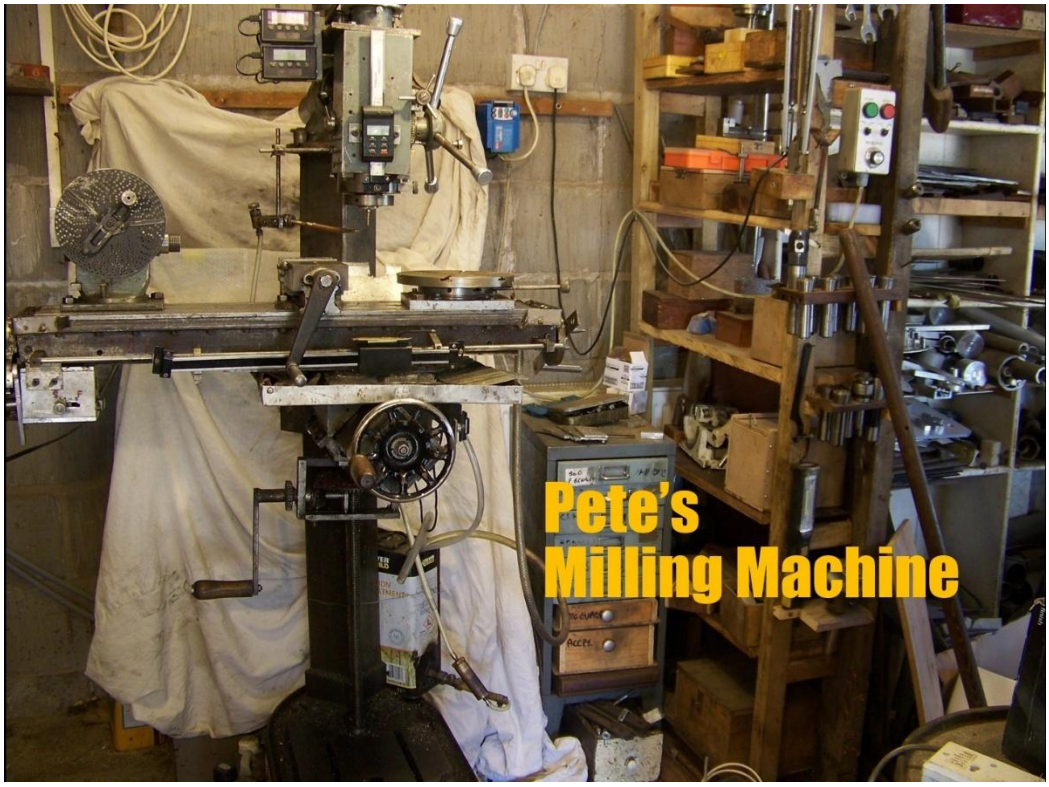
Jonathan thanked Peter for all the work involved in putting together the presentation. He also belatedly, wanted to thank Chris for his talk on the *Blacker Steam Hammer* the previous month.

Jonathan wanted to remind everyone about the e-mail he sent out regarding the PEEMS workshop clearance which was featured in last month's newsletter.

- **For Sale:** William Burrell has a ***Warco*** mini-lathe for sale. It comes complete with tools. If you are interested see William.
- **Talks And Visits For Next Year:** The committee is compiling a list of speakers and visits for next year. If anyone has any ideas for this please let Jonathan know.
- **Auction:** We had an auction last year. We're not having one this year because it can be a bit 'hit and miss'. We might have an auction next year, but people will have "to be realistic" about valuations.
- **Direct Transfer Of Monies To The PEEMS Bank Account**: As you know, the Club no longer accepts cheques, and would prefer members to direct any monies into the Club account via direct banking. The Club will provide the details to make the transaction. However, some people have been having problems with the system. Jonathan wants to know if it's a problem with the PEEMS system, or it's a problem with system individuals use at home, or whether or not the Individual's system is compatible with the PEEMS system. PEEMS wants to make sure the monies submitted are identified with the person making the transfer. Please see Jonathan if you're having problems.
- **Club Meeting Wednesday October 1st**: This will be the *Mike Sayers' Trophy* and 'Bring and Brag' evening. 'Bring and Brag' means just bringing something along you want to show and have a chat about. The Mike Sayers' Trophy competition is a more serious aspect of the evening and the Trophy is awarded for excellence. In the past we have had clocks submitted, boats, locomotives etc. It is usually a very varied selection of models on display.
- **Annual General Meeting (AGM) Friday 7th November at 11am at The Hungate Centre, Pickering.**

  The AGM is held on a Friday lunchtime at the Hungate Centre. PEEMS has been operating under a reduced administration over the past year, and has just about got through. The Club however, needs to have a lot more administrative support. We are open to people wanting to be Chairman, Vice Chairman, Secretary, Treasurer, Press Officer, etc. You will be more than welcome to come and help us. If you do, you will have as much guidance and support that you will need.

- ***My Vertical Mill (and how I designed and built it).* A Talk by Peter Bramley.**



- **Introduction.**

Peter wanted to explain how this project started back in the mists of time. Peter has been making models (including whittling wood) since the end of the Second World War 80 years ago. When he was a bit older, he started working with *Trix* which was similar to *Meccano*, but had more holes in it, and there was no sheet metal.

Another construction kit Peter got through his parents was *Prestacon* which was a machine which pressed out round holes, cut aluminium and could form it. That was the start of Peter's modelling career.

When Peter's family came to Pickering in 1952, Peter had to go to two technical schools, one at Selby and one in Scarborough, where he was taught a few more things about engineering and how to make things. The following year, which had a big influence on how Peter took up model engineering, was the fact Pickering had the first *Traction Engine Rally* in the North of England. An even bigger coincidence, that Peter didn't know at the time, was the traction engine "*Old Glory*" which made all the news in 1953, used to come threshing at the farm where Peter's family used to live. Peter learned that fact quite a time afterwards. So that is what started Peter on his path to "proper engineering".

Peter was fortunate when he started work, that one of his colleagues was a model engineer already. He had seen some of his models and some of the things he was making. His colleague used to get to work early, to do a spot of brazing before the boss got in.

Three years after that Peter got a call from "Her Majesty" wanting his services, and unfortunately, he had to serve 2½ years abroad so that stopped everything. Peter did however, have a watchmaker's lathe which he used, just to get a bit of practice in. After Peter got back from Aden in Christmas 1959, it was very cold so he couldn't do much, as his workshop was an unheated garage with a tin roof, but he decided he still wanted to carry on model engineering. So, he sent away for a few catalogues. Peter also had access to *Model Engineer* magazine that his mother subscribed to for Chris. One of the catalogues (*Bonds*) had a 1½" scale traction engine on the front cover. With the previous experience he had with traction engines, he thought that was what he was going to build. You may think that's an odd choice to make, but he had made other things in between. Peter got the drawings and made the traction engine, but not very well. He also found a watchmaker's lathe wasn't big enough for what he wanted to do.

He was fortunate that one of the people he worked with, Jack Rex (brother of Lou Rex who used to organise the Harrogate exhibition), had a lathe that was made at Leeds University as a project for students. It was a 2½" x 9" centre lathe, and Peter starting making traction engines, but again found that the lathe was too small.

4½ years later, he received another request from "Her Majesty" to "sort out some people in Aden". So, he had two years in Aden not doing much, but it made him keener to pursue model engineering when he came back.

He put an advert in the *Model Engineer* for a lathe. He got one reply from the chief designer of *Drummonds Lathes*. Peter had already got a car when he got back from abroad. Five days later he was down on the South coast to look at the lathe, which was a long bed *Myford*. It had no serial number on it. All *Myford* lathes have a serial number. This one didn't have any. The reason was that the owner bought all the castings from Myford, and they all had been machined. He built it the way he wanted it to be built. It was the first *Myford* to have COA (Complete Option Assembly) cross-feed. This provided automatic power-feed to the cross-slide. That came home in the car, along with a lot of metal. A *Myford* is also reasonably heavy. The car was tilted down at the back. He pumped up the back tyres, and moved as much weight forward as he could, but got it home.

He had that lathe for 42 years, but it still wasn't big enough for what he wanted. So, his present lathe is a *Boxford* industrial type lathe.

With traction engines you have gears, and Peter was quite keen to make everything himself. To make gears you need a drilling machine. He gave 5 years thought to what milling machine he wanted to build.

- **The Milling Machine.**

The height of the machine is about 5½ feet and table is about 3 feet across, so it is reasonably big. Peter also wanted it to be as versatile as possible, with "all the bells and whistles". He was rather fortunate that he obeyed the rule "*you never throw anything away, and when you're offered something, you grab it with both hands*"

In the construction of the mill Peter utilised: i) a 5/8" drilling machine which was quite heavy. ii) a carpenter's brace and bit. iii) a sewing machine.

i) Describing The Machine.

The photo shows Peter's machine shop with a materials store to the right. There is also a rack of accessories, and there are some sockets and collets. The base of the milling machine was part of the drilling machine.

The column which supports the machine, is a 4" hollow square section ¼" thick, which Peter had ground on all four sides.

The handle on the left is created from the carpenter's brace and bit. This lifts the table up and down. The central handle for the cross-slide is from the sewing machine. At the very top is the quill out of the drill itself.

The head block was a 4" square x 8" long block of solid steel courtesy of Lou Rex. This was bored out for the cutter spindle and quill to pass through.

There is a homemade dividing head with two plates. Peter can just about machine 80% of the number of teeth required up to 100 and beyond.

There isn't any gearing on the rotating table, it is rotated manually using the handle. That was made in the 1960s.

Peter actually bought a milling vice, and next to that is a rotating table (it's not a rotary table). It doesn't have a gear to turn it around; it's rotated by the handle. That was made in the 1960s.

ii) Table Height Adjustment

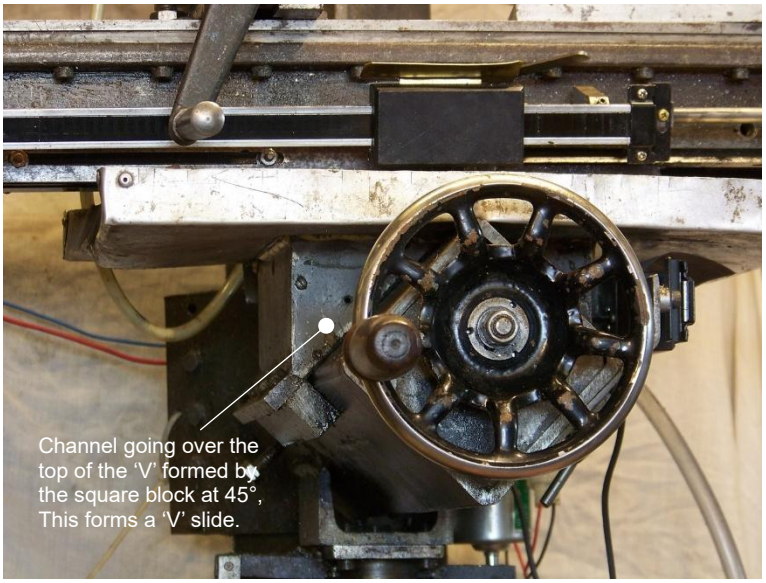
Reaching up from the base plate at the bottom, there is this *Myford* lead screw.

On the left is the carpenter's brace and bit drill handle. The gear arrangement forms a 2-speed bevel gear.

By undoing some gearing, the small bevel gear can be moved over to give a higher speed.

The gear on the outside is something Peter tried, but it wasn't successful. As can be seen from the first photo, this gearing is underneath the table.

iii) Table Cross-Slide.



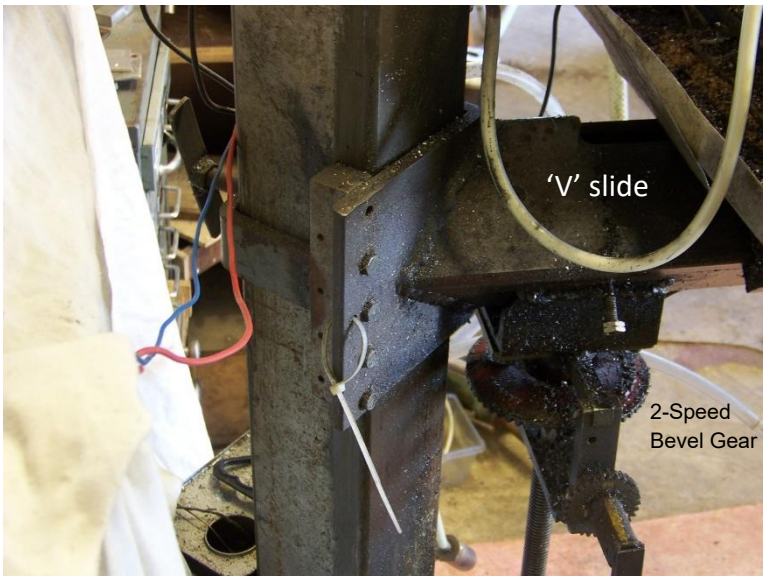
This is the mechanism that fits to the column and operates the cross-slide.

Here we can see the sewing machine handle for the cross-slide.

The handle is attached to a 4" square block rotated around 45°. There is a channel behind, which goes over the top of the V that's formed.

This forms a 'V' slide for the cross-slide This 'V' slide extends back and is attached to the column as shown below.

You may be asking why the 4" square is rotated around 45°. The reason is that a 'V' slide gives you more accuracy than a straight slide.

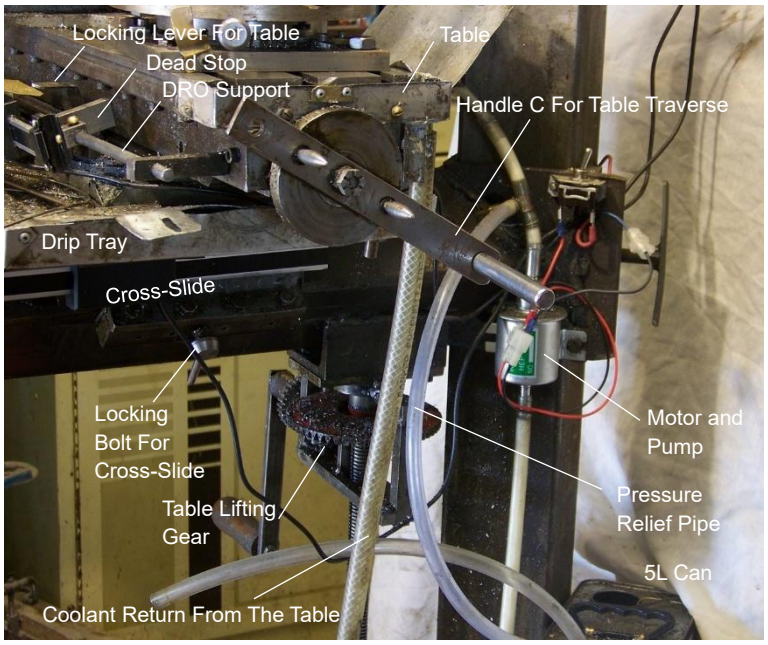


This is the back of the cross-slide, showing the 'V' slide. On the lower right can be seen the two speed bevel gear.

The vertical column is seen. This has been ground on all four sides and rotated 45° about the vertical axis of the machine. This provides a stiffer and more stable structure with regards to machine vibrations.

This photo shows how the table and the 'V' slide are attached to the column. The 'V' slide is welded to an angle, which is in turn bolted to a bar which is welded to the column.

iv) The Table Traverse And The Cooling System.



The cross-slide member is seen with the lifting gear below. There is also the locking lever for the cross-slide.

The coolant system can be seen. There is a 5 Litre can with the pipes coming up.

The motor is there with the pump, taking the coolant up to the point of delivery. There is a return pipe to take the coolant back from the table.

When Peter first built the milling machine, he thought the original table traverse handle would be big enough to operate the table finely, but he couldn't, so that's why he put Handle C on it.

The drip tray catches any coolant that splashes over the table.

The DRO support that allows the DRO to slide into any position can be seen.

There are "dead stops" and a locking lever for the table.

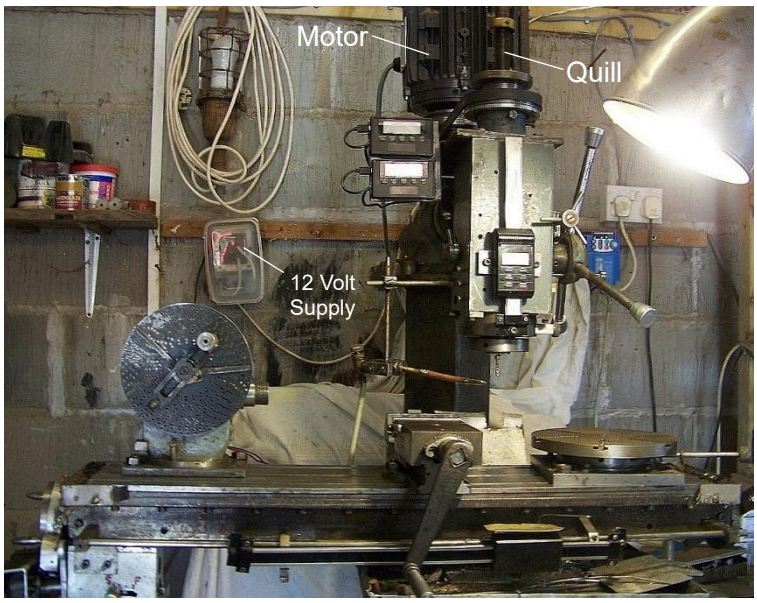
The Table DRO can slide along the round bar to whatever position is required. The two dead stops are shown.

The left hand “dead stop” goes up against the stop bar. In the picture the column length can be seen. The column is about 4½ feet long and as mentioned before, ground on four sides. Peter was a bit concerned about the cost of grinding bright mild steel, so he went down to *Park Engineering* in Malton, and asked them if they could grind 4½” square tube. They said, no problem, so all four sides were ground. The 45° square cross-slide member behind the handle was ground at the same time.

You may ask why the column was rotated 45°. One reason was that it gives you a ‘V’ slide. The other reason was that Peter was concerned that the column was only ¼” thick, and was concerned about vibration and rigidity. If you turn a square tube through 45° to the direction of the primary forces in the milling machine (which will be forwards and sideways) then that will increase its rigidity with regards to vibration. It was important that the column was rigid, because anyone who has done milling will know that there will be a lot of vibration from the cutter.

Once again referring to the square head at the top through which the cutter spindle passes, Peter thought it was important to have a vertical feed which moves the cutter down as well as the lower feed which moves the table up.

The column is fitted to the original base of the drill, by two pieces of angle which are welded to the column and bolted to the base.



This photo shows the motor on the top. Originally the cutter had a geared head with ‘pick off’ gears. That idea came from when Peter bought the *Myford*, because there was a drill bolted to the back of it. This meant that the *Myford* served as a drill and a lathe. It had six-speed gearing on it and that’s what Peter used originally, so there was big gearbox on the top of the cutter head used for the milling machine.

The trouble with the system on the Myford was it was difficult to change gear. At this time variable speed motors were being introduced.

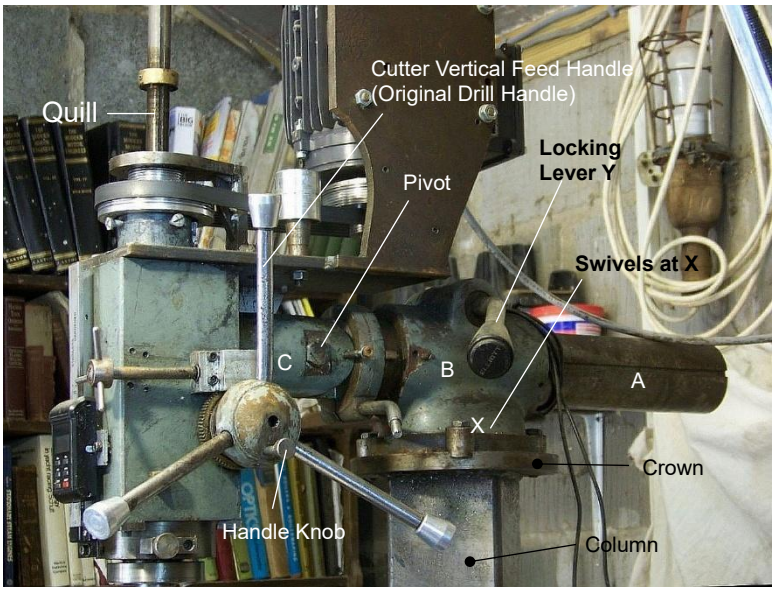
So, Peter bought a variable speed motor. There are two pulleys, one fast and one slow, and these are fastened to the quill itself.

The speed is about 150 to 3000 rpm. It’s easy enough to change from one speed to the other.

Q: Does the motor rise and fall with the quill?

Peter: No, the head is fixed to the column. The table can be moved up and down, or the cutter tool can be moved up and down using the down feed handle. The quill moves down through the pulley wheel. There is a keyway inside for engagement.

The plastic box is the 12V supply into the workshop. That was bought in 1962. Peter has had 8 amps going through there and it gets hot.

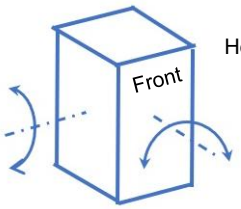


The column is there with the “crown” on top, and Peter needed to be sure the crown was square on to the column top. He used a large tri-square to check, but wanted something better. Peter realised that the milling machine needed to be adjustable so the cutter ended up being at 90° to the table.

Components A, B and C, the quill inside the head and the handle were all parts of the original 5/8” drilling machine. The drill had a tilting table on it and that came in very handy.

You can see the original drill column A, the original table casting B which swivels about the column vertical axis at ‘X’ as shown in the photo. This is just what Peter wanted.

He knew Surface X was parallel to the original drill column A.



Head Tilt Axes

By slackening off lever Y, the drill column A can tilt which allows the cutter to line up square with the table. But it needed to do so at all points across the table. He decided to split column A in half, cutting half of it away and did the same with component C too, thus shortening them. This created a swivel joint for the head. Inside component C is a ring which is set into both components A and C, so the head can pivot at the bolt position in the photo.

When thinking about the design of the mill, Peter thought about its horizontal movement too.

The original drill handle (see photo above) moves the quill up and down. Most drills come with a Morse Taper, and it was a 2 Morse taper on the original drill, but this was no good for the Vertical Mill. Peter had come across R8 collets and he thought that is what he would use for more versatility. So, the Morse taper part of the drill was machined out and replaced with an R8 collet. There is a draw bar at the top of the quill to tighten it up.

There is a keyway in column A. If Peter machines something big, he can slacken locking lever Y off, move column A horizontally out, tighten Y up again and realign the head. This makes the milling machine very versatile.

Peter is making three 1½” scale B6 power traction engines. Some of the traction engine gears are 8 dp (diametrical pitch) and most will go down to 36 dp. 36 dp to 16 dp is the working range for most model traction engines. Peter can cut 8 dp bevel gears on this machine, with the dividing head.

The traverse travel of the cutter is about 12” sideways and the cross-slide travel is about 6” in and out. The handle provides a fine deed. By pushing the handle knob in, that goes into two holes in the gear behind which engages the gear behind. The handle is a worm gear and the two provide a fine traverse feed.

v) Getting The Head ‘Square On’

By turning column A and twisting component C, the head is brought straight onto the table. Peter has a square piece of glass which sits on the table. Then he puts the DTI onto the cutter spindle itself. He measures between two points over about a 14” distance and if the difference in measurements is a thou from one end to the other, the “jobs a good ‘un.”

The cutter spindle has one bearing at the bottom at J, a thrust bearing at K, and a taper bearing at L to take out any end-play.

Bar M holds the motor on and is fastened to the head. The motor provides two speeds. The rotating table in the photo is 6” diameter.

The table is built up and fabricated.

The table is 2½ feet long. The ideal was to have a 'V' slide traverse. There was no way Peter could machine a 'dovetail' slide. Instead, he got some hexagonal bar, and he hacksawed it across corners the whole way. It worked quite well. The half hexes are screwed to the table and cross-slide as shown below to form the 'V' slides.

Peter had to cut 4 to 5 feet of hexagonal bar in total. It took about 3 weeks to hacksaw by hand!

Table Slide Schematic only ~ not to scale

The next thing was to machine the table traversing screw. The traversing screw for the table was longer, at 36" than the 31" that Peter could machine on the Myford.

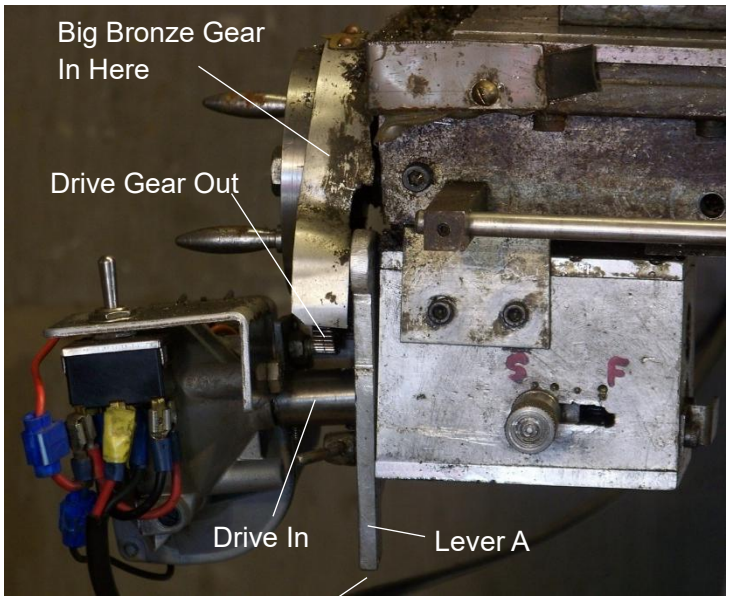
The question was how could that be machined? It was difficult

Peter could get the bar and then machine down the two ends. In order to support the free end when machining, he made a stand using a piece of tubing, so the free end wouldn't "wobble about".

The two ends were machined, Once the bar was the correct length, the thread needed to be machined. The bar was centred up against the tailstock. It was held in the 4-jaw vice. Peter then put the steadies in, and the thread was cut 6" at a time. By using a travelling steady, he was able to complete the thread; and further along, he was able to prevent the bar flexing during machining by using the fixed steady at the back of the lathe.

Peter had to be very meticulous about how he started cutting the thread at the beginning of each 6" section.

vi) Automatic Transverse Feed For The Table.



This is the gearbox and drive. There is a system of gearing inside the box which drives a shaft. There are two gears on a sliding bar to pick up "*Fast*" (F) and "*Slow*" (S). "*Slow*" is ¼"/min, and "*Fast*" is ½"/min.

The drive comes out the top of the gearbox to the gear on the left (which acts like a forward and reverse gear).

By pulling out Lever A this engages the small gear with the big bronze gear above, giving a 6:1 reduction.

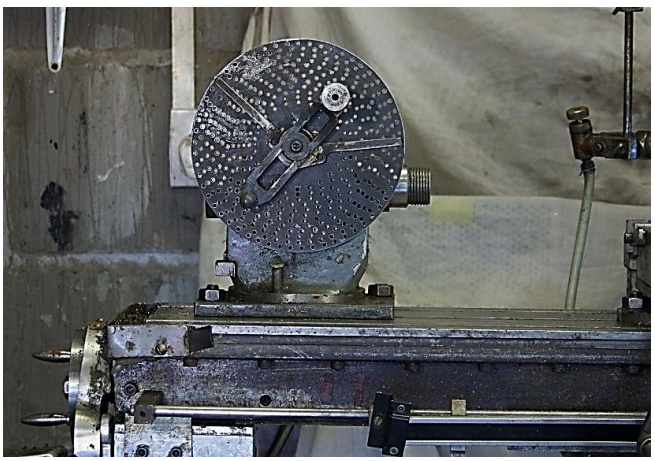
The big gear came out of a bombsight. It's bronze and is about 40 dp. The motor is on the left-hand side of the machine. The switch is selected for forward and reverse. The way the switch points is the direction of table travel required.

Being a twin volt system it's a 'double pull' switch.

The section at the top of the table contains the table coolant.

The DRO bar is seen running across the centre. Here you can see the hex bolts. The table was fabricated using ¼" hex bolts which Peter had bought in bulk at a very cheap price. When the table was completed, it was taken to *Park Engineering* to be ground flat.

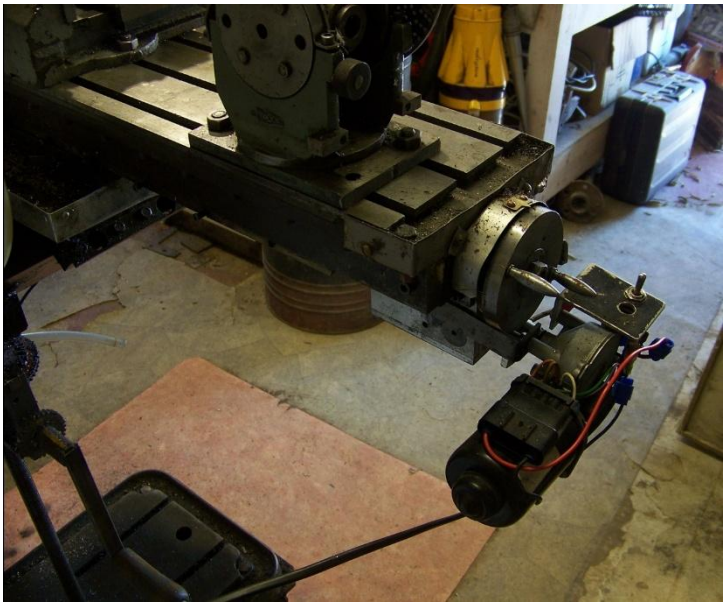
vii) The Dividing Head.



In the early 1970s, Peter realised that his dividing head didn't have enough height to do the traction engine gears, so he made a new base. The plate has rows of a dozen holes across the radius. There is another plate with the same number of different type holes across the radius.

Peter can machine most gear teeth up to 100 and beyond without much trouble. The disk also tilts anti-clockwise on its horizontal axis and also swivels on its vertical axis so it can be used for bevel gears.

There's a Myford nose on it which goes right through, and works quite well.



This is looking down on the table and on the table motor.

The table consists of three ‘T’ slots with the coolant tray at the end.

Q: What thread was cut for the table feed screw? Was it an ordinary thread, or a square thread?

Peter: A square thread.

Q: I wasn’t quite sure how you made the table. Was it made with plates that were screwed together?

Peter: It was fabricated using ‘T’ slots and the ‘V’ slides were fastened underneath the table as shown on the previous page So, there was enough room to fit the feed screw.

Q: How much do you think the whole machine weighs?

Peter: About 2 to 2½ cwt (280 lbs), but it could weigh more. The biggest problem I thought I had with the machine was its rigidity under vibration. I even thought about filling it in with concrete as damping. Having moved the mill from one house to another, I’m glad I didn’t.

Q: The square head stock that you got from Jack Rex, did you bore that out on the Myford for the quill/spindle?

Peter: Yes, I used the Myford to do it, but it was difficult, the head is 8” long. I could only just do it. The bore wasn’t quite central either.

Q: Did you bore it between centres using a boring bar on the Myford?

Peter: Yes, that’s how I did it. I couldn’t do it on the milling machine I had, the hole was too long at 8”.

Q: How did you get the initial hole through it?

Peter: I used the drilling machine on the Myford. I used it on the lathe cross-slide.

PEEMS thanks Peter for an excellent talk on what is quite a unique project.

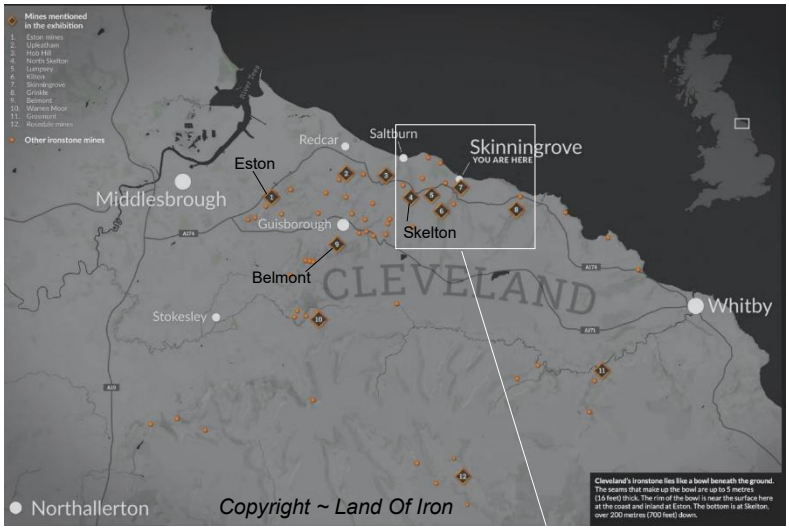
PEEMS Visit To '*The Land Of Iron'* Museum In Skinningrove/Loftus, Cleveland on Tuesday 9th September.

On Tuesday 9th September fifteen PEEMS members and guests travelled to the *Land Of Iron* Museum in Cleveland for a tour around the mine and museum in the morning, followed by a heritage walk around Skinningrove village in the afternoon. Fortunately, weatherwise, it was a perfect day for the visit.

We were met at the new entrance to the museum by our guides Adele and Steve, and issued with hard hats for our visit.

- **Location, Orientation and Context.**

Skinningrove and adjoining town Loftus (previously Lofthouse), lie on the coast between Middlesborough and Whitby and are positioned half way across the extensive East Cleveland Ironstone field. Skinningrove itself sits in a valley which runs South/North to the sea. Skinningrove was the very first ironstone mine to open in Cleveland on August 7th 1848. It was the first of over 80 mines in the region. A major discovery at Eston in 1850 led to an explosion in mining activity. The ironstone from the mines in this region helped power the building of railways and bridges across the world.

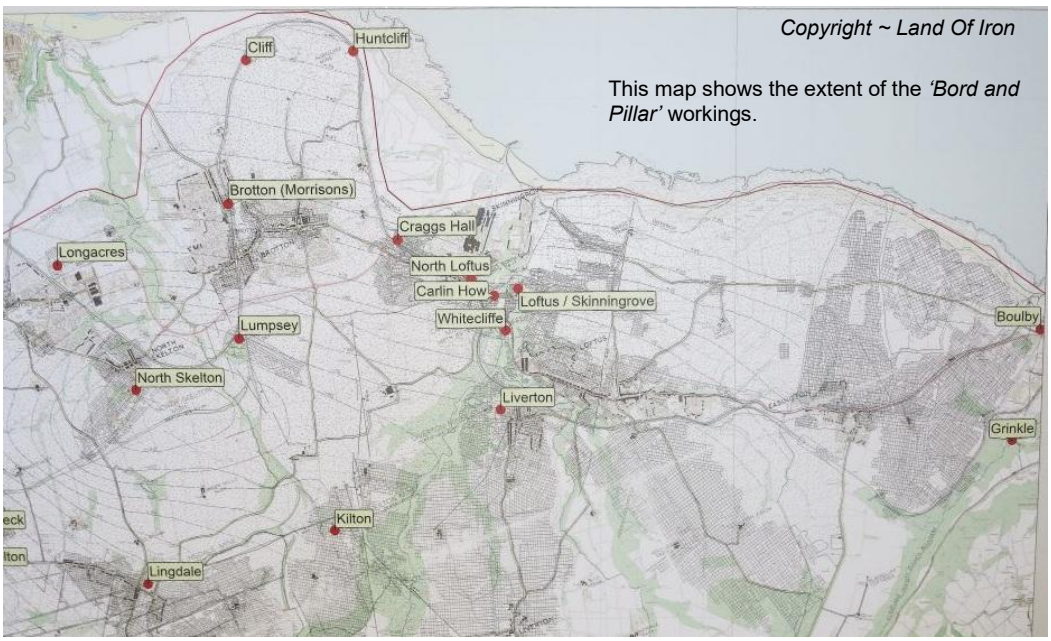


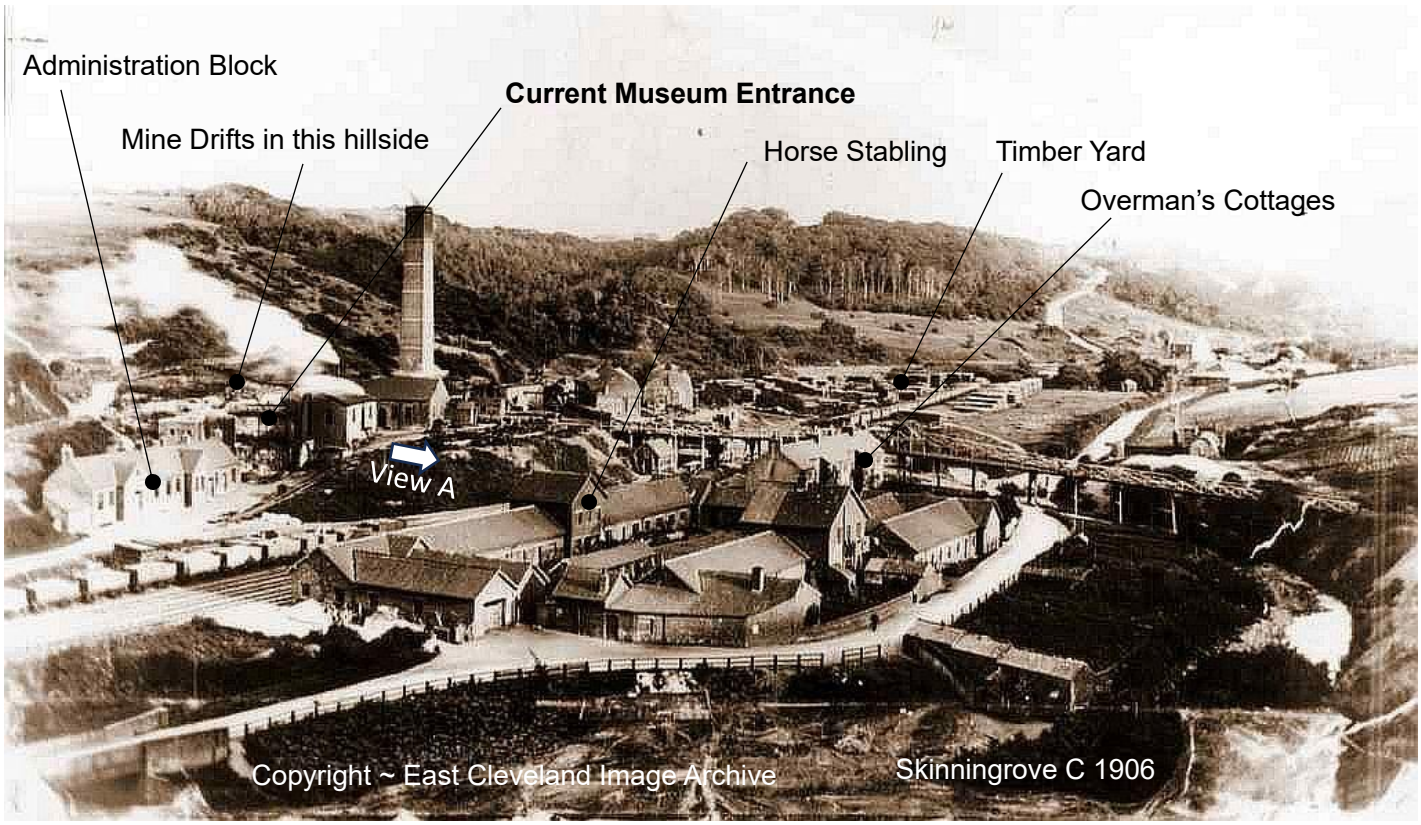
Cleveland's ironstone lies like a bowl beneath the ground. The seams that make up the bowl are up to 5 metres (16 feet) thick.

The rim of the ironstone bowl is near the surface at Skinningrove on the coast, and inland at Eston.

The bottom is at Skelton over 200 metres (700 feet) down, and rises up to Belmont near Guisborough

Land Of Iron





View 'A' West across Kilton Beck and the Valley (c.1905).

The Valley Of Iron ~ Skinningrove and Kilton Beck (c.1905). This valley is typical of the many mining communities that developed in Victorian Cleveland.

A: Loftus Mine: Three other ironstone mines were visible from this point. Whitecliff (up the valley), Liverton (beyond it in the distance) and Carlin How, across the valley (also known as Duck Hole).

B: Kilton Viaduct: This carried the coastal railway between Middlesborough and Whitby. It became weakened by mining subsidence and closed in 1908. Shale (mining waste) was tipped around the pillars to strengthen them, and the viaduct was reopened as an embankment in 1913. It now carries potash and salt from Boulby mine, the deepest working mine in Europe.

C: Wooden Gantry: This was installed after 1892 to control the increasing cost of transporting stone out of the steep valley, A new drift entrance was made into the abandoned North Loftus mine, and its shaft was used to haul stone into the ironworks at the top of the bank. Its construction required the demolition of two of the seven Overman's cottages.

D: Surface Stables: These housed up to 45 shire horses. They would be led underground along a drift that opened within the compound. There were also underground stables, and Blacksmiths operated at both sites.

E: Zig-Zag Railway: The arrival of the railways to this area in 1855 gave the opportunity to transport ironstone more economically to ironworks in Middlesborough and south west Durham. The steep sided valley was conquered by the building of the Zig-Zag railway. Ironstone was hauled up the steep banks by specially designed locomotives.

F: Mine Offices: Money in and money out. Here were housed the pay clerks, mine manager and under-manager. These buildings are now private houses.

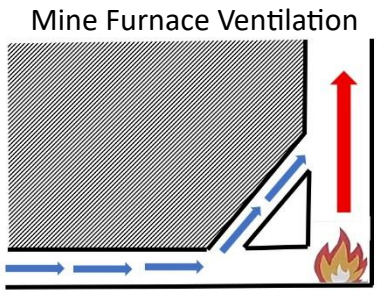
- **The Iron Mine Visit With Our Guide Adele.**

We were divided into two groups of seven for the visit, one group led by Adele and the other led by Steve.

Referring to the photo of the Skinningrove (Loftus) mine in 1906, we were able to orientate ourselves to the area. Driving into the museum, we had passed mine buildings which are now private dwellings. These are known as the "Overman's cottages". An 'Overman' was a mine deputy. These people were needed on site 24/7. They were dealing with gas checks in the morning, and if there were any accidents underground, they would be the first responders.

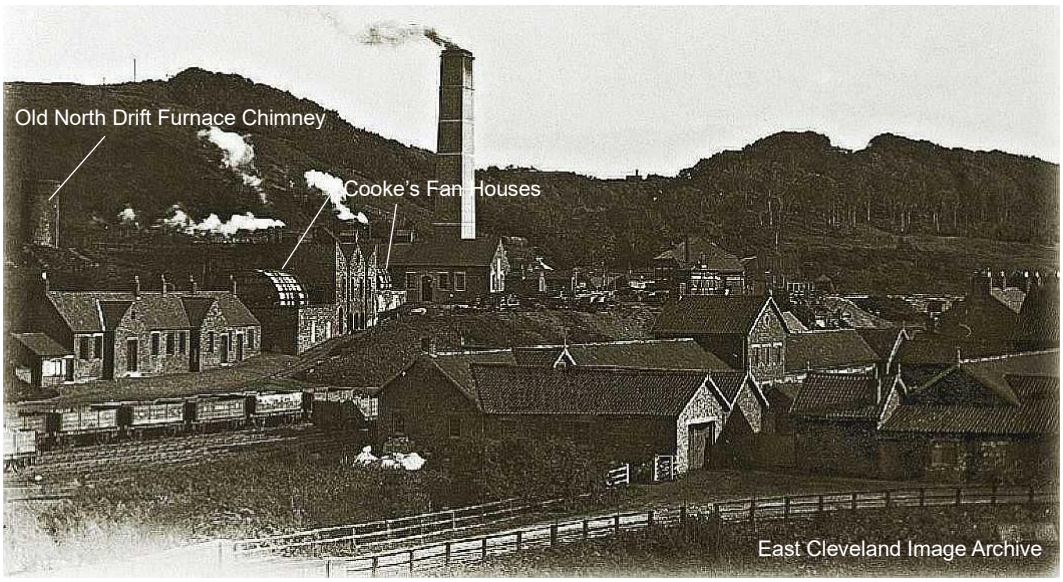
After parking the cars in what was the old rail yard, we then came up the stairs past the original administrative block for the mine. The newly built entrance building to the museum was courtesy of *The National Lottery*. This is the more historic part of the mine. The original purpose of this building was to provide ventilation to the mine.

- **Ventilation**

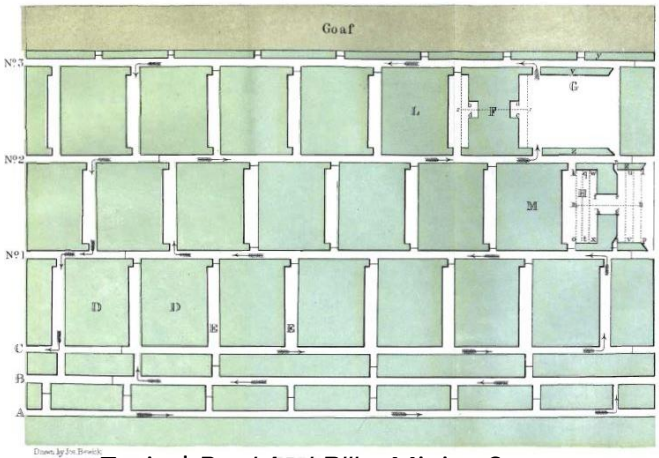


They started experimenting with ventilation, by starting fires underground to draw air through, and then they moved to a *Cookes ventilator,* a steam powered fan. There is documentary evidence that Mr Pease is writing to his friends saying the system is working well.

The photo below was taken sometime in the 1890s. Both the 1872 and 1874 Cooke's fan houses are visible with the compressor house and the boiler plant chimney behind them. A little away from those to the right is the Hauler House for the South Drift. On the hillside to the left of the photo is a large chimney which was the original furnace shaft for ventilating the North drift, but was likely only used for a few years before the 1872 Cooke's fan took over. The building and fans were eventually replaced with a 30-foot Waddle Fan.
(reference: East Cleveland Image Archive web site).



Behind us where we stood in the museum foyer, was the wheel fit for the *Waddle* fan. There were a lot of types of ventilation used in the mine. There are about 350 miles of passages. Mr Pease was the owner of the mine and he was linking up this mine with a lot of other mines that he owned. He was stretching out as far as Grinkle (near Boulby mine), and he wanted to bring the mineral from underground rather than from the surface.



Typical *Bord And Pillar* Mining System

Even with the *Waddle* Fan, men were complaining that the shafts weren't clearing and they couldn't breathe properly. This makes sense because in an ironstone mine, as ironstone is exposed to air, it "robs" the oxygen from the air so the air is not fit to breathe. The problem gas here was carbon dioxide produced by people just being in there.

With a "Bord and Pillar" (room and pillar) mining system. you can imagine how difficult that would be to ventilate.

The system consists of corridors of mined ironstone surrounded by the remaining 'pillars' of rock which support the roof.

To maximise the capacity of the mine, the pillars were eventually mined out and replaced with timber props to support the roof. Some miners specialised in this aspect of mining and spent their whole time doing this.

Eventually the mine moved to a *Sirocco* electric fan for ventilation. Because the ironstone is about 20 metres below the surface, we were able to access the mine workings using a drift, which is a tunnel which slowly drifts into the workings. There are several drifts on site. There is North drift and a South drift. The drifts allow the haulage of ore out of the mines. There are two haulage drifts. Mr Pease put these in because he wanted the mineral out as fast as possible.

The Pease family were one of the main drivers of the industrial revolution. They had involvement in everything. They were involved in the development of Saltburn and the Darlington Railway. They were involved with the Durham coal fields and they had their own bank.

Where the museum car park is located was the luxury accommodation for the horses. The condition of the horses was all important. They had their own exclusive drift into the mines. It was on flat ground and it had a nice roof, and the access was made easy for them. The men, however, entered the mines through an entrance adjacent to the stream through the site, which was prone to flooding. (This will be discussed later on the afternoon heritage trail).

The mine had a timber yard because pit props were very important.

Mr Pease was putting adverts in national newspapers calling the mine "*The New Eldorado*" and recruiting people from as far afield as Scotland, Derbyshire, Northumberland and Cornwall. People were walking from Cornwall, because the Cornish mine owners are not good employers.

Mr Pease is a Quaker so he was promoting higher welfare. He built schools, good housing, and hospitals. He still charged for hospital care for injuries, but that was better than the alternative. The Quakers were operating in York and further North. A lot of mines were operated by Quakers. At Alston, the *London Lead Company* had significant workings on Alston moor. Mr Pease was very good at providing all the services that people needed, paying a decent wage, but charging people for tools and equipment.

There were about 80 ironstone mines in Cleveland, and Mr Pease ran most of the shops in the villages. Many of the villages in the Skinningrove area are here because of the ironstone mines.

Q: Did the pit ponies come up to the surface every night?

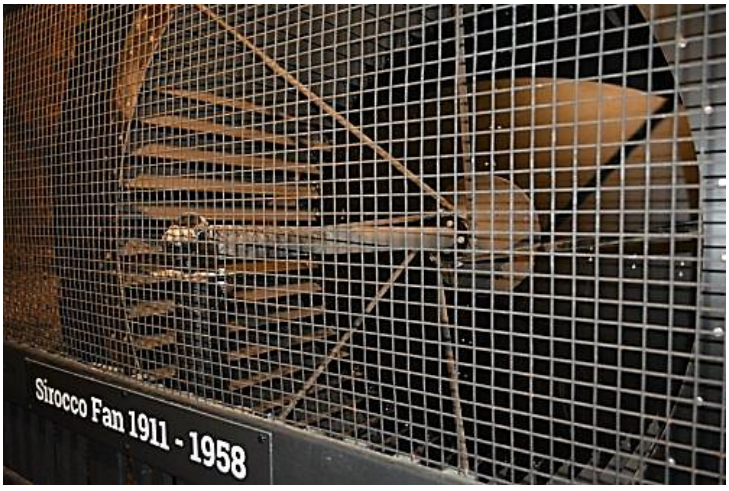
Adele: These weren't ponies, these were Shire horses like Clydesdales. They had to be at least 15 hands. The tunnels here at Skinningrove would be at least 11 feet tall. The only place that was bigger was Eston. That was the best mine.as you had the *Upsall* fault coming through, and the main seam of ironstone filled 2-ton tubs. You can always tell an Eston mine photo because people are working on ladders.

Q: Were they mining ironstone at Rosedale?

Adele: Rosedale's iron is a bit different to Skinningrove's. It's 60% iron; if you put a magnet on Rosedale ironstone it will stick to it because of the *Magnetite [Fe_3O_4]*. The ironstone at Skinningrove contains *Siderite [$FeCO_3$]*. It's better ironstone in Rosedale. People put a lot of money into Rosedale. Some people made it big in Rosedale, but some people lost money.

The photo of the Skinningrove mine is dated 1906, which is when it was at its peak performance. It was operating 24/7. But after the two World Wars it never got going again. In the 1930s the unemployment rate in the Skinningrove area was 90%

The Sirocco Fan.



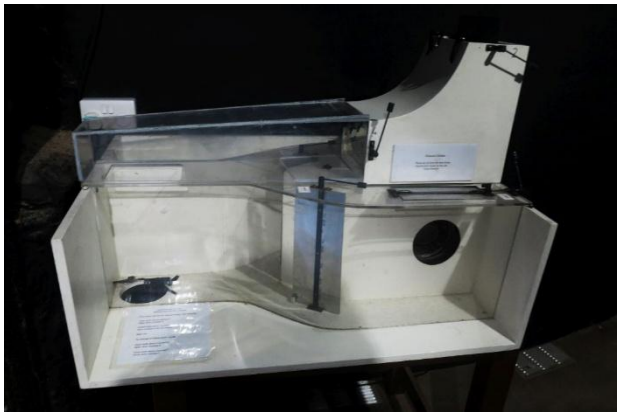
This is not the original *Sirocco* fan. It was made by someone local who was a DT teacher at a local comprehensive school, who convinced the children to build a *Sirocco* fan.

This fan was cutting edge at the time, the problem is, the legislation changes. It's a problem throughout the mining industry.

There were a series of mining disasters, particularly in the Wales coalfields.

If there is an explosion underground, and there is only one direction of airflow, gases can be pulled onto men. There were more people killed because of the gases, than by the explosion itself.
To prevent this, the direction of airflow in a mine had to be changed regularly.

The *Sirocco* fan can't do it. You can't stop this fan and spin it the other way.



A series of solutions were required for the problem.

They experimented with a series of air (paddle) doors illustrated by this model. It shows the exhaust where all the dust and debris come out. To get around the legislation they used the paddle doors so that as the bad/dusty air is being expelled through the exhaust, the paddle doors close and fresh air is drawn into the mine by a fan. It is an elegant solution. This is a safety feature that was never needed to be used in this mine.

Skinningrove was the very first Cleveland Ironstone mine. When you look around the area, it's not the best place for the mine to be located. Skinningrove is in a valley and when it was initially established, there was no rail access.

However, the advantage is the geology. Cleveland ironstone outcrops at the surface in this area. If you walk along the beach at Hummersea, east of Skinningrove, you can see the cliffs, and for a geologist it's like running a knife through a cake. You can see the main seams with the ironstone at the top. You can even see rails coming out of the cliff where there has been a collapse.

Cleveland Ironstone sits in a basin. When you get to Lingdale or North Skelton, you are at the bottom of the basin. The pit bottom at Lingdale is 220 metres lower than the basin rim at Skinningrove. The basin rises up and when you get to Guisborough, at Belmont and Eston the ironstone is back up in the hills.

- **Tally Numbers, The Tally Hut and Mining in General.**

If you were a miner at Skinningrove, on your first day of employment you would be given a tally number, and that Tally number would stay with you throughout your employment. Before you started work, you would report to a 'Tally Cabin' to pick up your tally, and put it into your trouser pocket, not in your jacket or waistcoat, as you may take these off during work. The other purpose of the tally is body identification. When accidents occurred in an ironstone mine, it was usually mass casualties.


Miners ~ Normanby *Land Of Iron*

These men were only being paid for the minerals they extracted. The miners had assistants or "*fillers*". In the early period, ironstone mining was a very skilled occupation, it was very hard work. The *filler* put the mineral into the tub, He was like an apprentice. He was learning "the art" of mining, and it is referred to as an "art". He was often lodging with the miner. If the miner was killed, he might have to marry the miner's wife, because the houses were dependent on having an active miner. If a husband was killed, a lady would get a "*week to grieve and a week to leave*". This meant she had a fortnight to sort something out, and often she would marry several times. One thing to note are the candles. The deputies went into the mines for the gas checks. Methane was not a particular risk in this mine; the main risk was carbon dioxide. So having a candle was a good idea, Carbon dioxide is a heavy gas, and a candle would be extinguished in its presence.

Midge Lamp: The candles are carried in a 'Midge' lamp. These are basic. Essentially, it's a corned beef tin, and the premium Midge lamp might be a *Golden Syrup* tin, which has solder inside reflecting the light. It's just a means of carrying the candle. When the miners were working at the face, they were working by another type of 'Midge' light.

On the photo one of the miners has more than one tally around his neck. In the early days, the tallies could go over either side of the tub. The tub went up to the "*top banksman*", and he wore the tallies.

However, as the tubs were coming up all the time, the "*top banksman*" tended to get confused, and people didn't think they were getting paid what they thought they should be paid.

It was said that a wheel barrow of money came to Carlin How, and it had a policeman with it. The policeman wasn't there to stop people robbing the money, it was to stop the fights that sometimes would break out. They moved to a better system whereby the tally was put in the bottom of the tub with a hook before the ore was loaded, and when the tub was turned upside down at the top, the tally was left hanging.

When the mines were unionised, the first thing they did was put a union official with the "*top banksman*" because he was not trusted.

- **Ironstone**

The ironstone is heavy. Its Jurassic. It's like limestone with added extra, It's formed in a warm shallow sea around the equator. The Tectonics have moved the ironstone North.

Ironstone can be picked up off the beach, but that would have already interacted with the sea and the air, and as a mineral for processing, it is "rubbish". The first minerals sent up to Consett to the blast furnaces, were sent back with the message "don't bother". At best this ironstone was 30% iron, and at worse, as you go south, it becomes 22%. This quality led to the demise of the industry in Cleveland.

It became financially more viable to import *Hematite* ironstone [Fe_2O_3] from Spain or Australia. If you crack open the ironstone on the beach at Skinningrove, it looks like stone, whereas the *Hematite* when cracked open has a lustre and looks like metal already.

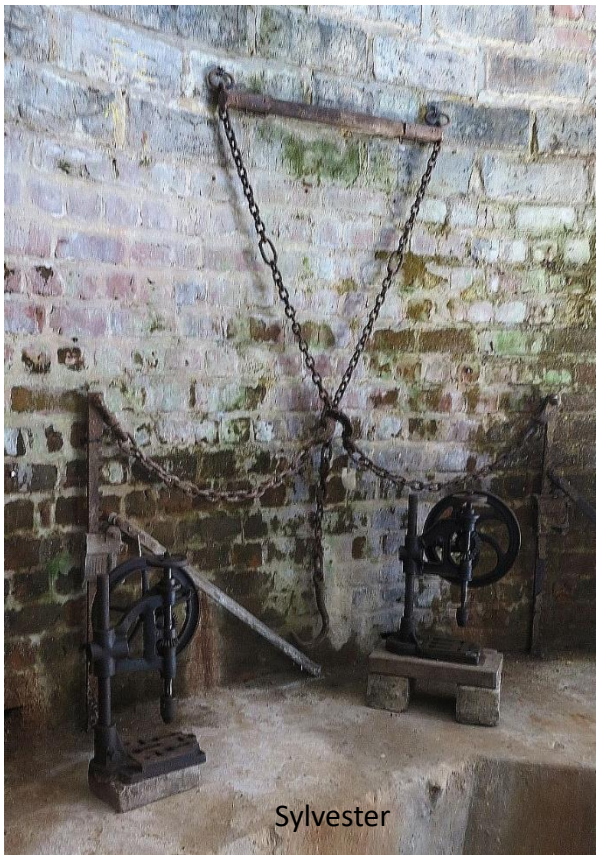
If you walk along the beach here, the cliffs look like clay, but if you look up, it looks like a rock structure, but it's not, it's slag. It is residue from the blast furnaces further North. There is a valley over here called 'Deepdale'. It's not a deep dale now; it's flat, because it has been filled up with shale. The blue/grey *Scoria* bricks are made from slag.

- **Mice and Rats**

Canaries are not used in ironstone mines because methane is not a problem. Instead of canaries, the ironstone miners used rats and mice as their "early warning". The rats (and mice) are going to succumb to CO_2 far quicker than a human. So, if you see a lot of dead rats, you know there is carbon dioxide down there.

- **The Bord and Pillar (Room and Pillar) Mining System.**

The hills surrounding Skinningrove are hollow, and if they are not hollow, they have been hollow. They have been "*goafed*" and collapsed down. A *goaf* is the void created when all the ironstone has been extracted from an area. In a "*goafed"* area, there are stone pillars maintaining the roof. To maximise profits a process of "*goafing"* and "*judding"* was carried out. The miners go in to mine the stone pillars. The roof was originally self-supporting with the pillars. They call it "*working the pillars*". Some miners do that job all the time. You end up with a *Judd* which is a vast area where all the stone pillars have been removed, replaced with a sea of timber props supporting the roof.

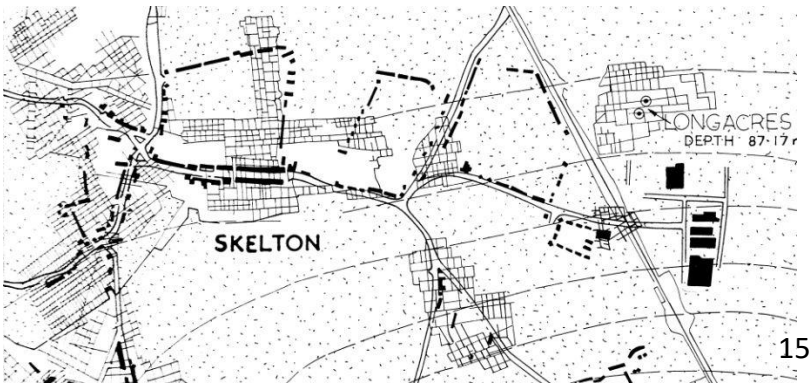


Sylvester

Not content with taking all the stone out, the mine owners also want the timber back. They used a "Sylvester" which wraps around the timber. You retreat a few yards and pull the timber out. Eventually, the roof does collapse.

They tended to leave areas around villages and road junctions alone. *Bell Brothers* ran Skelton mine. and they did not collapse the areas within the village perimeter, but the stone houses showed cracks. The building inspector said that was because of the poorly built houses, because the mine was very deep with a big band of clay, sandstone and shale above. Nothing changed until the graveyard and chapel showed signs of subsidence. The church had money for remedial work

There are railings between North and New Skelton that you can see are bent, which would be due to the mine workings.

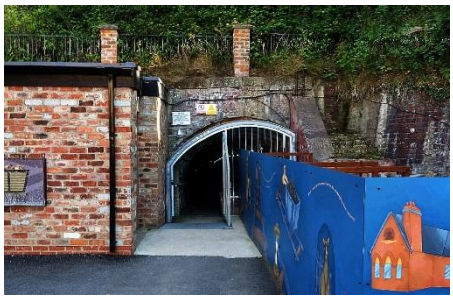


Bord and Pillar Workings Around Skelton. Copyright ~ *Land Of Iron*

After 1911, Skinningrove got electric street lighting, before Middlesborough did. It's very inefficient and expensive to keep using candles.

When the miners went into the travelling drift, they would go a couple of hundred yards, and then stop at a little siding where they would "get their eyes" for 10 to 20 minutes. With their eyes adjusted they could continue into the mine.

- **Into The North Drift.**



Originally, there would have been two sets of rails going into the drift. Volunteers have put in one set of rails so that a pathway can be maintained for visitors. The railway has also been slightly raised from its original level. The rail gauge was usually 2' 6".

The idea was to get the mineral out as fast as possible, and there was a continuous ropeway with steam power at the top. There needed to be a means of communication from top to bottom, and this was provided by a hammer striking a plate, operated from the bottom by a handle:

1 Hammer Blow: '**Stop'.** 2 Hammer Blows: **'Full'.** 3 Hammer Blows: **'Lower'.**

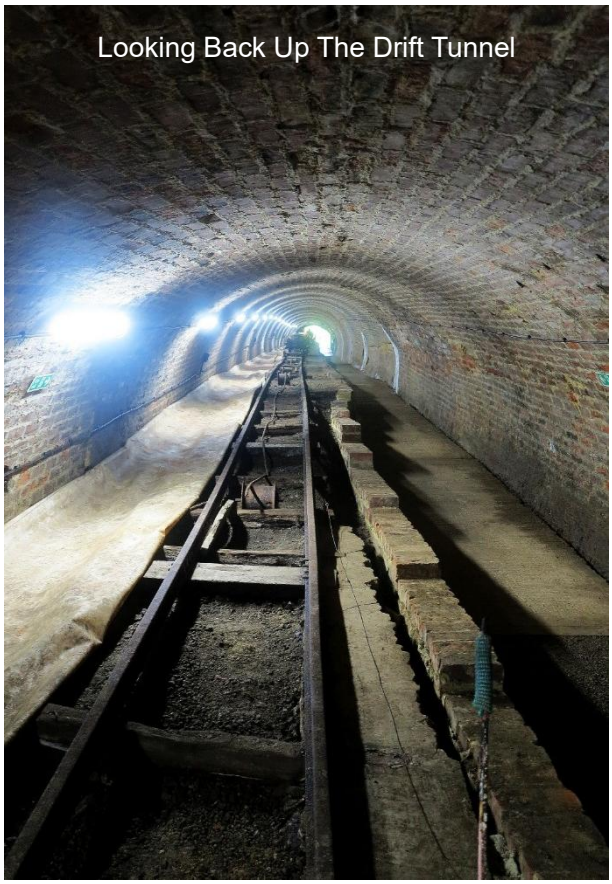

Bottom Hammer Handle

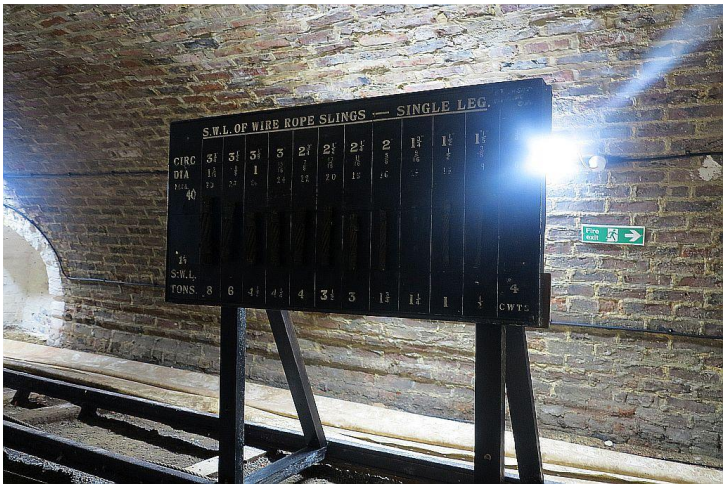

Top Hammer

Refuges were provided in the side of the tunnel for people doing maintenance on the rail. Being hit by a tub was a daily hazard to avoid. We saw marks on the wall where a tub had hit the side of the shaft.

The floor of the drift has been dug out and refilled with pea grit. Clay and other rubbish had to be removed. At the bottom of the drift, there is a little sump in the corner which is pumped out twice a day, because the drift fills back up with water. We had come about 100 metres down the tunnel to where a 'bung' had been built blocking the tunnel. The tunnel continues the same distance again, but at a steeper angle, and Adele didn't think the brick integrity further down was safe for visitors. So that is why the 'bung' was built halfway down.

The bricks lining the drift tunnel are five courses thick. For Adele, the people digging the tunnels and sinking the shafts are the 'unsung heroes', because there were more deaths doing that than amongst the miners.





Shire horses of at least 15 – 17 hands would have been used to move the tubs around underground. The horses were very well looked after. Some horses nearer the surface would be stabled outside, but there is a stable underground which is supposed to be located under Loftus market place. It was a '*bord and pillar*' working that was repurposed. The mines would have annual horse inspections (there was no RSPCA etc. in those days), and the person with the best kept horse would receive a financial reward.

Q: You said it was a continuous rope, so what was turning it at the top?

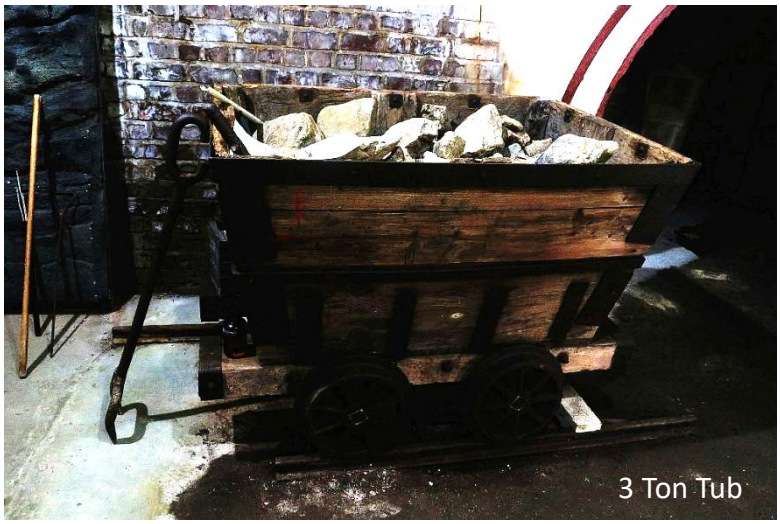
Adele: A steam engine.

Q: Was it always steam, or was another method ever used?

Adele: It was steam until around 1909. The felling of the boiler plant chimney in late 1912 proves the steam boilers and machinery were all redundant by then, so we can assume that the North Drift hauler had been converted to electric power 1909 -1911. They would probably remove the steam engine driving it and replace it with an electric motor, without changing the winding drums to save time and money. (*With thanks to Simon Chapman for the extra information).*

- **Tubs**

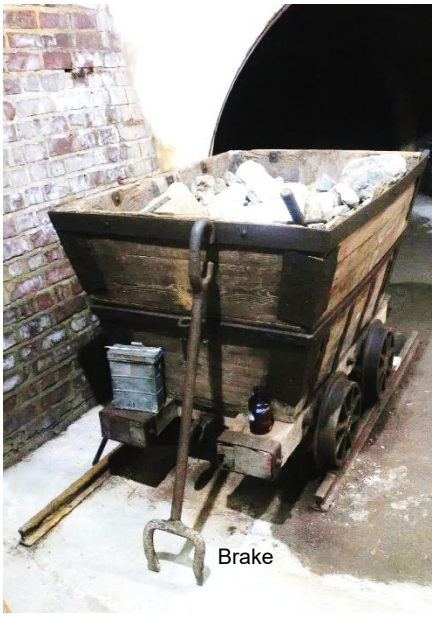
Tubs of ironstone were moved around underground by heavy horses such as Clydesdales and the local Cleveland Bay.



This is Bobby and the photo was taken in the 1930s. The East Cleveland Image Archive is full of photos like this. Bobby is wearing a helmet for the photoshoot, but his flat cap is still on the ground next to him.

The tub reconstruction gives an indication of the size of the tubs the horses were pulling, and they would be pulling two tubs at a time when they were full and four tubs when they were empty. They were called "*Three-Ton-Tubs*" when they were full, but Adele had never seen a photo where they were level with the top; they were always stacked higher. The mine was always trying to maximise loads/shift. These were big horses, as evidenced by the size of the horse shoes on display.

As if the horses didn't have enough to contend with pulling these tubs, there was a "brake" which went on the last tub the horse was pulling. This was actually to help the horse. If the horse was overwhelmed with the load, the brake was applied.



Another way of "braking' the tubs was by using a "sprag", which is thrown into the wheels when they are in motion. The Accident Book is full of people being hit by these. The miner would also be fined if he broke the spokes of the wheels.

The Cleveland "sprags" are this cross shape. The coal mine "sprags" are more like a cup. The Cleveland sprags are especially dangerous as they caused wrist injuries.

The tub on display has been remade from plans for an Eston tub. The tubs at Skinningrove would have been metal, and straight sided.

- **Tools**

These are the tools that the miners would have originally used to create the "shot holes" and to install and prime the explosive.

The tool second left, is a "jumper drill". These originated from the Welsh slate mines, and from the Lake District. The "jumper drill" allowed a miner to work by himself. It's drill and hammer all in one. The miner would pick this up and throw it at the working face. It would then be twisted. This procedure was continued until the "shot hole" was complete. The beauty of this method is that you get a perfectly triangular "shot hole". This method of creating "shot holes" was a true skill. When the explosion occurred, the rock fractured at the points of the triangle, so that is why you get these pristine cuts in the mine passage.

When the mine wanted to update the tools with rotary drills, the men complained that they were going to "lose the art".

The "jump drill" was thrown at the hole for an hour, and once the "shot hole" was complete, some white paint and a scraper (third left) was used to clean out the hole.

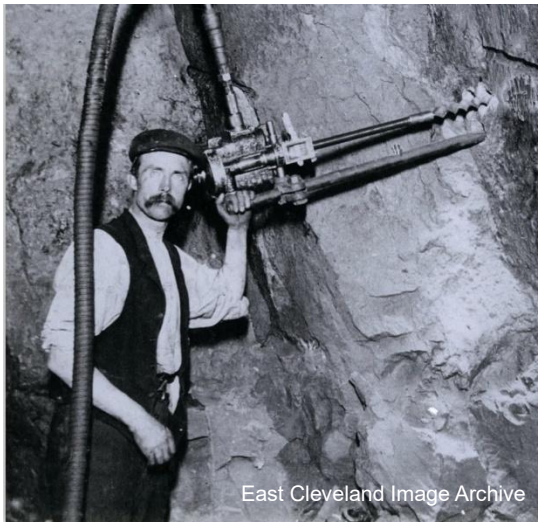
Experiments were carried out with different explosives, and it was found that black powder gave the best results. Mr Pease sold black powder cartridges to the miners, along with all the other necessary tools.

Once the black powder cartridge was placed in the "shot hole", the wooden "Stemmer" (right above) was used to push it to the far end. Because it is non-ferrous it will not cause sparks. There is a groove in the "Stemmer" to include a copper "pricker". Once the black powder is pricked with the "pricker" and tapped with the hammer (jumper drill), it is "stemmed over" with clay and horse manure. The work had to be precise.

The pricker is then removed leaving a hole for the fuse *(squib*). The "*squib"* needs to be firm and dry (so it doesn't become a *'damp squib'*). The *squibs* were usually company *squibs*, but the men could make their own. The *squib* was slow burning gun powder. The *squib* would be placed in the hole and then carefully 'packed out'. The squib was then ignited which in turn ignited the black powder with the resulting explosion hopefully bringing the rock down.

It wasn't a precise science and the explosions sometimes didn't occur. If they didn't, the miners would have to wait ten minutes and then call a deputy. The deputy would usually tell them to abandon that hole and drill another, which meant another hour of work. In some cases, the miners may try to *re-squib* the hole, but the original *squib* may still be burning. It was a dangerous business.

Eventually, by the 1950s, the miners started using rotary drills and later, compressed air drills.



Miner's Tools

- **The Zig-Zag Railway.**

When the railway arrived in the area in 1855, the Zig-Zag railway was installed. This looked like a good idea at the time, with ore being able to be transferred within the mine facilities, but also across the rail network. However, there were a lot of accidents. Then the price of rail transportation increased. Eventually there was a ropeway which took the ore from the mine, across the valley and up to the ironworks on the other side.

This is an ambulance carriage which was used by Bell Brothers, a company involved in the area's ironstone mining history between 1850 and 1865. This carriage served a specific purpose: its orientation indicated the occupant's condition—if they were carried in feet-first, they were deceased, but head-first meant they were injured but alive.

PEEMS would like to thank Adele and Steve for an excellent tour around the museum and mine facilities.

The information provided was very interesting, covering not only the history of the mine from the beginning but providing valuable geological information.

Also, many thanks to Adele for helping me compile this article and doing the extra research to help provide more information.

PEEMS would definitely recommend *Land Of Iron* for those interested in industrial archaeology, and the history of the Industrial Revolution in the North.

A Heritage Walk Around Skinningrove on Tuesday 9th September With Isaac.

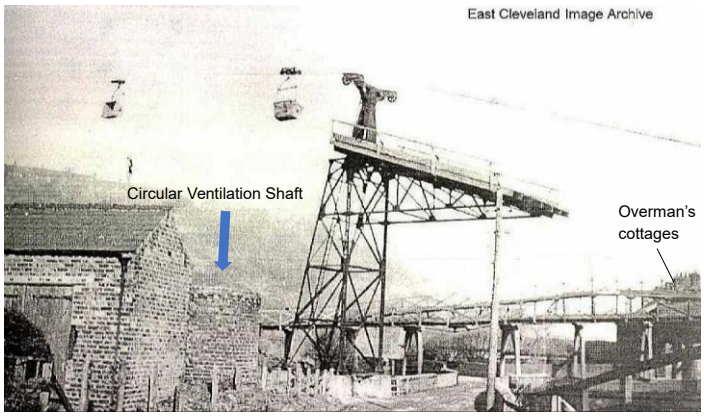
Following our visit to the *Land Of Iron* museum and drift, and after a good meal at the *Kaskane* restaurant, ten of us joined Isaac for the two-and-a-half-mile heritage trail. This trail took us from the museum, north through the village of Skinningrove to the sea jetty and Cattersty sands, and then returned us to the museum.

The *Kaskane* restaurant and holiday cottages used to be stables for the mine. The photo was taken in 1875 while it was still a stables. Forty horses lived in the stables above ground while they were not working in the mines, and their shifts were cycled with those working underground to allow adequate time for rest. After the stables closed, the building became an abattoir, and then a café and holiday cottages. The abattoir was demolished so the holiday cottages could be created. We then walked to the entrance to the museum and the road into the village.

These are the "Overman's" cottages.

The "Overmen" were mine managers in terms of authority and responsibility. It was the same concept as being a groundkeeper or caretaker and living close to the mine. As the mine was operating 24/7, if something went wrong, they would be responsible for solving the problem. This shows how many Overmen there were by the number of sections that protrude from the front. At some point some cottages to the south were removed to make way for the gantry (reference page 11).

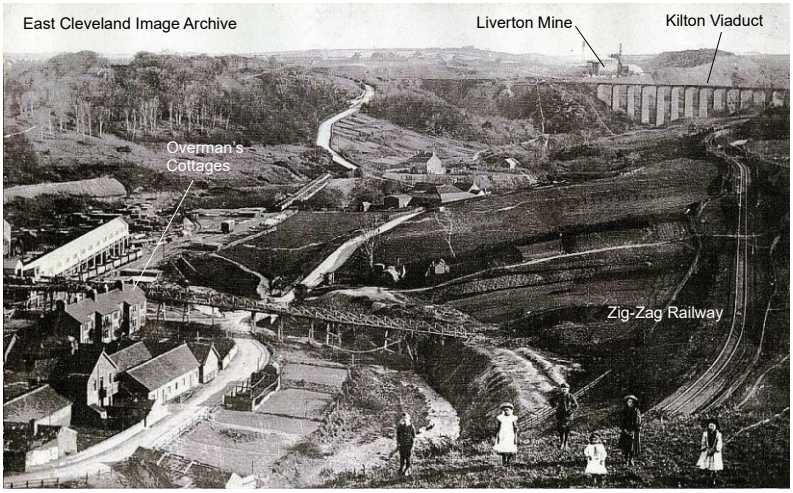
The carpark of the museum used to be the railway yard. All the wagons there, were sent along the Zig-Zag railway to the village and beyond. The heritage trail will almost follow the path of the Zig-Zag railway.



The Buckets Ropeway. Looking North along the road to the sea

Looking South along the road today. The circular ventilation shaft is still there.

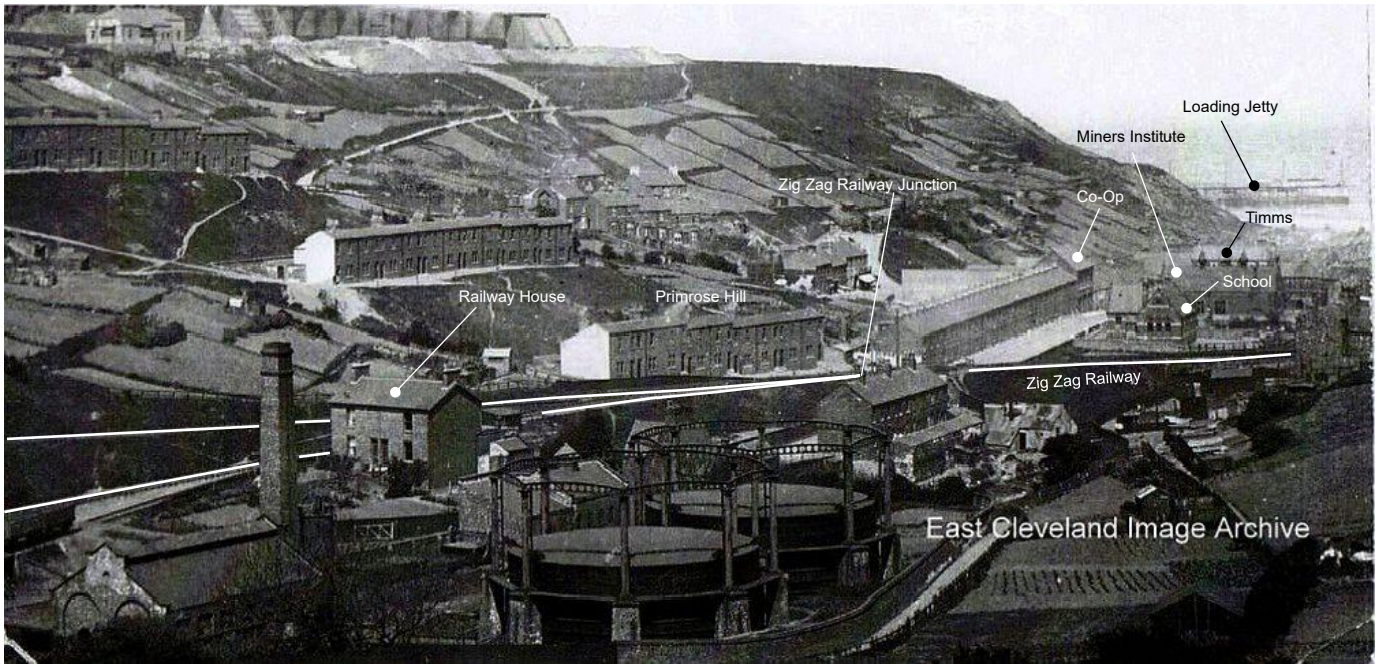
The Buckets Ropeway was implemented in 1908. This helped to get the iron ore from the mine in the East, over the valley, and up to the ironworks in the West. This was a more efficient method than the Zig-Zag railway. Once the ironstone got to the ironworks it was tipped and counted. The Bucket Ropeway also served to bring waste shale back down to the East, where it was tipped behind the mine. The hill behind the museum was once called "*Deepdale Valley*" but it is no longer a valley as it has been filled in with shale. It is now just called "*Deepdale*". The railway went up to Carlin How and then to Boulby. The Kilton viaduct in the historic photo of the mine is no longer a viaduct, it's an embankment, as it has been filled in with shale. Doing that was possible because of the Buckets Ropeway.



Walking down the road just past the Kaskane holiday cottages, we came to the road bridge across the beck which runs through the village. The road we were travelling on was called '*hoss muck terrace*' due to its proximity to the stables. The holiday cottages have the names of the horses who used to live there when the mine closed.

Only last year there was some activity underground which caused an outflow of water with a rusty discolouration. Even though the mining has been gone for 67 years, a lot of 'fallout' still remains. The beck was a bit "orange" and that was due to the ironstone being washed out of the outflows. The iron settles until it is disturbed by the beck current rising or there is a blockage. This area has had quite a history of flooding over the years. The main bridge into Skinningrove is a new bridge, because the original bridge was lost in the floods of 2000. The beck itself is a big reason for the flooding; the sea rarely comes up because the defences are so good, but most flooding is caused by blockages in the beck.

Doorstep Green Park, is across the road where the beck tunnel entrance in the photo is. The beck runs through the tunnel and through the park. The railway needed to come down into the village from the rail yard, where it started, and so it came over the beck here.



This photo shows the gasometers and also conveniently shows the route of the heritage trail North to the sea and the loading jetty.

Our next point on the trail was **the Railway House** which used to have a chimney in front of it. It has had a few extensions over the years. The Zig-Zag railway would park there. The reason for the chimney is unknown at the present. The Zig-Zag railway cut across the heritage trail at the beginning of the lower row of terrace houses.

Railway House

Looking at the previous photo, the **Old Primary School** is seen. The windows have changed slightly.

Skinningrove used to have two schools, a primary school and a junior school. Until 1920, children were only educated to the age of 12. The expectation was that after that they worked for the mines, or supported the miners. The fact there were two schools, indicates that there were enough people in the village to warrant them.

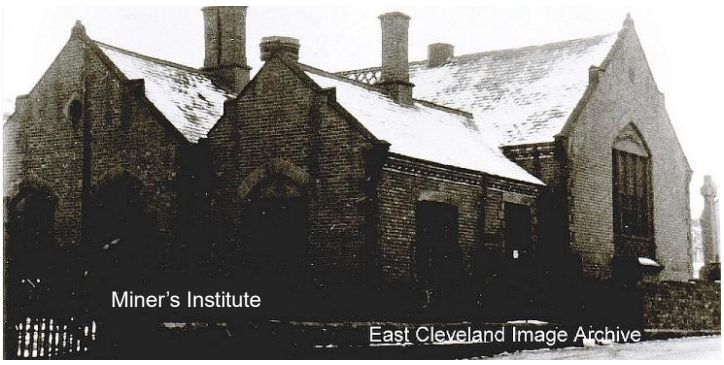
Since then, the population of the village has decreased drastically because of the collapse of the ironstone industry.

The next point on our route was the point where the terrace row started in the Gasometer photo on the previous page. We had just walked past Primrose Hill Terrace. This is where the Zig-Zag railway cut across the road to its terminus. The railway virtually split the village in two. There may have been an underpass to get to the other side, but now the railway has gone, this is the main street.

The Zig-Zag railway cut across the street close to this point

Just beyond the school was the ***Miner's Institute*** **and the War Memorial**. The War Memorial photo shows just how many people were living in the village. The War Memorial was not just for the people who died in wars abroad, but for those who died at home. The iron works were targets in both the First and Second World Wars. Skinningrove didn't lose too many people in the wars because mining was a "reserved" occupation. Although miners didn't need to join up, a lot of them did, and they served as sappers and miners.

Every mining village had an Institute, and this is where the miners could socialise and build up the community. In Skinningrove, the Institute was one of the few that had a connection to the universities, because the mine was important, and central to the Industrial Revolution.



Miner's Institute

East Cleveland Image Archive

East Cleveland Image Archive

War Memorial in front of the Miner's Institute

The miners could also come to the Institute to learn new skills and trades. Any miner who injured themselves and couldn't mine anymore, could learn a new skill like blacksmithing. They would pay a minimum fee for training.

The Miner's Institute in Skinningrove was known as "*Friendship*", the Institute in North Skelton was called "*Hope to Prosper*". Some of the Institutes are still being used, the one in Eston is a pub. Some have been demolished, like the one at Skinningrove, some are empty, and some are used as holiday lets.

We walked to the end of the terrace to where the **Co-Op** was originally sited. This was essentially a supermarket. It served what the village needed. It was the biggest shop in Skinningrove. However, it was one of 80 shops in the village, as people were able to sell from their front rooms. They would sell vegetables that grew in their allotments, chickens, eggs etc.

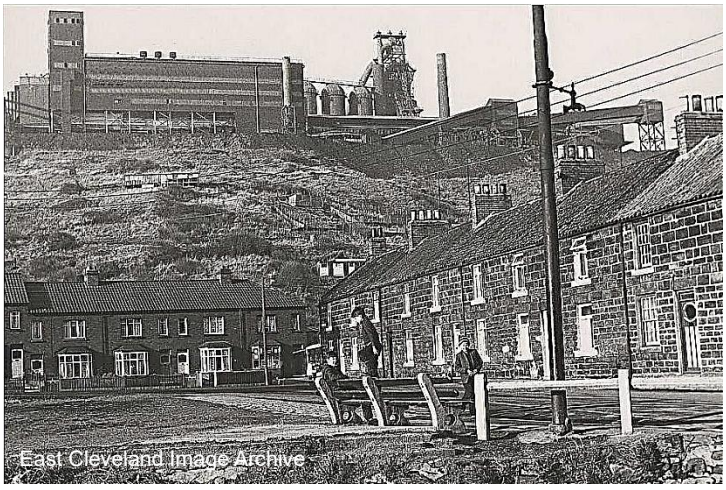
The Co-Op was demolished in 2015, and is now a small park. The butcher was the first shop on the row, and we could see the interior wall on the end of the terrace. There was a draper in the middle, and then the grocers.

***Timms* Coffee House** was across the street from the Co-Op. *Timms* predates the mining industry. The Quakers who developed the village as a mining community, didn't want pubs there. However, as Skinningrove already had a coffee house, they were allowed to keep it. Coffee houses mostly sold coffee, which gives the impression that this was a "premium establishment", as coffee wasn't widespread at the time. In the 1800s, coffee was being imported from the colonies. Because the coffee house wasn't attached to the mine, they were allowed to sell other products like alcohol, which was more affordable to the miners than coffee.

Skinningrove was very popular because it was one of the few mining villages in the area that was allowed to have a pub. The Quakers wouldn't allow any of the other villages they were building up as mining villages, to have one.

Timms is now the *Moonfleet* Boutique Hotel.

The Square



One of the *Land Of Iron* volunteers reckons he is one of the lads in the photo. *Stone Row* predates the mining industry, when Skinningrove was a small fishing village, and *Stone Row* was essentially all there was. The houses at the end of the square are late Victorian, and the houses on the third side of the square are fairly modern. This means there are three different generations of houses in the same square, which is quite unusual.

The Ironworks at the top were demolished in the 60s and 70s. It was a gradual process. There are still Ironworks up there, but they are significantly reduced. The blast furnaces are gone, and there is just a rolling mill. There has been some investment and they have put in a couple more warehouses. The industry in Skinningrove is “alive and well”, as much as the steel industry in the UK can be. They specialise in rolling “Profiles” for beams and girders, and a speciality is forklift truck profiles.

Isaac’s favourite thing about the photograph is that the pigeon lofts on the hillside are still there.

The Old Hall has been constructed in a particular way. It was constructed during a time of Catholic persecution. It is built in the shape of a cross. It was a refuge for Catholics travelling by. Pre-mining, Catholics had to be careful whilst travelling about. Some of the features of the building have been changed over the years.

Non-Conformism In Skinningrove.

As you see from the historic photograph, there was a large Chapel behind the Old Hall. It is said that it was the Wesleyan Chapel, but Isaac thinks it is the original Primitive Methodist Chapel, because there were two chapels in Skinningrove. The Wesleyan community became too small to justify a Wesleyan Chapel, and moved out, and the Primitive Methodists took it over. The large Methodist Chapel was then knocked down. The Chapel the Methodists took over still says “Wesleyan” over the door as we would see when the trail took us past. The single-story building behind the Old Hall is now the Village Hall/Community Centre.

Pigeon Fanciers.

The *Skinningrove Pigeon Fanciers Society* received its youngest member last year, a six-year-old girl who had just bought her first pigeon.

The Miner's Hospital.

We were now approaching the beach. Opposite and across the road from the *Pigeon Fancier's Society* hut was the original site of the Miner's Hospital, now demolished. The Miner's hospital didn't just serve the miners themselves. Miners in the late 1800s would pay a penny of their wages a week, and that would pay for their health care; and for an extra 2 pennies a week that would cover their families as well. This was like insurance which was paid directly to the hospital. Isaac thinks that was a better system than paying an insurance company.

As can be seen from the photo, there was a bridge that spanned the beck at this point. The beck looks a lot wider than it does now. The bridge was the foot route out of Loftus and was the only bridge at the time which could be used to reach Loftus. The only other option for a miner to reach Loftus was back through the village, over/under the Zig-Zag railway, past the mine and then up a very steep bank. This was therefore a disaster when the bridge was washed away during the floods of 1903. A new road bridge was built to a design intended to make it harder for debris to get stuck and cause flooding. This was opened by Lord Zetland.

Marine Terrace and *Repus*

The photo above gives an idea of what this area looked like when the industry was "alive and well". The removal of the Ironworks has made a big difference!

Repus ("Super" in reverse) is an old fishing coble that was found in a bad condition in South Gare. It was brought to Skinningrove and repaired. The figures were carved in wood and given a fibreglass coat to protect them from the weather.

The two figures in the boat are a memorial to the many fishermen lost at sea on the treacherous North Sea coast.

After Covid, people came down to *Repus* and repainted it.

The Jetty

Proceeding past *Repus,* we took the foreshore path to the Jetty. The Jetty at Skinningrove was constructed in the late 1800s by the *Skinningrove Iron Company.* Ships carrying pig-iron would leave from the jetty and sail all over the world with their cargo. Ships would also come from abroad to collect pig-iron from Skinningrove. The ships were ballasted down with stones, which were thrown overboard when they arrived, resulting in Skinningrove's vividly colourful beach with stones from around the world.

Views From The Jetty

Looking East.

Looking West.

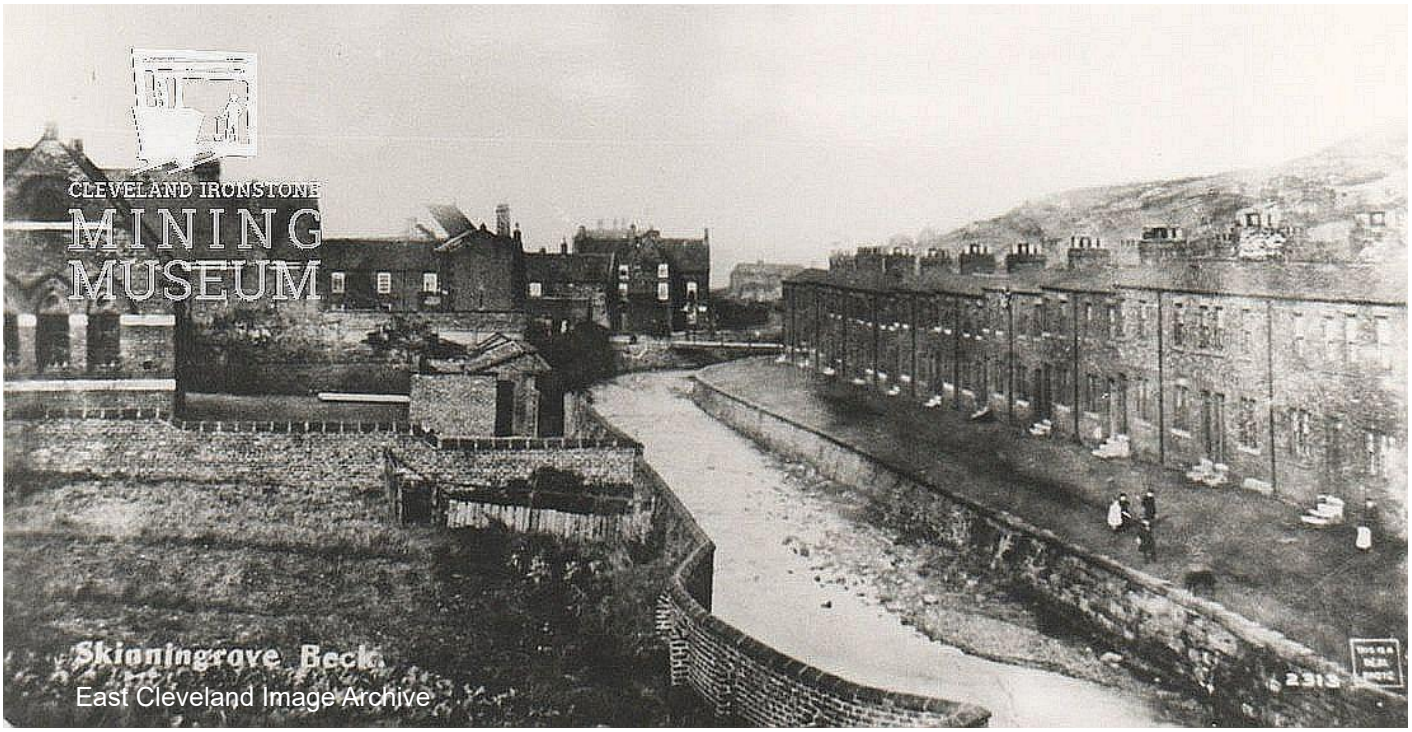
Looking East, the ventilation tunnels for the mines came out of the cliffs towards the North. We know this because, in one incident in the Accident Book, a young lad tried to exit the mine through the caves dug out of the sides of the cliffs, and he fell out and died. Further towards Staithes in the East is the old Alum works, so there was a lot of industry on the eastern side of Skinningrove. A lot of erosion is seen on the cliff. You can see that gravel and debris have fallen down the cliffs not too long ago. One collapse was last year, and the other the year before.
.
The lovely beach of *Cattersty Sands* is seen to the West. These cliffs are much more sloped, and there's a lot more greenery on the side of the cliffs. Here the erosion occurs closer to the top, rather than the bottom. Since the blast furnaces and Ironworks were taken down near to the cliff edge, house martins have returned. New houses don't have the nesting facilities that old ones do, so the martins have returned to the cliffs. This is one of the few places in the country where house martins nest in the cliff. The nooks and crannies are too small for sea birds like gulls, but are just right for martins.

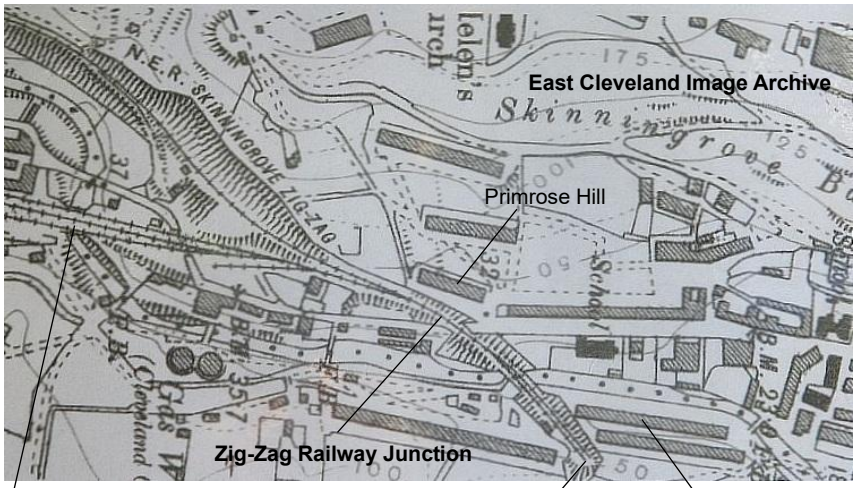
If the tide is low enough you can walk along the beach to Saltburn. When the sandbank is low enough then you can see the remains of a World War 2 pill box. It fell down when the cliffs were eroding.

The Methodist Church.

Leaving the Jetty, we made our way back into the village via High Street, passing the Methodist Church, and noting the "*Wesleyan*" which could just be picked out in the carved stone above the door.

Beck Row And the Terminus Of The Zig-Zag Railway.





The Zig-Zag railway starts in the railyard outside the stables and crosses the beck here.

Zig-Zag Railway Terminus

Beck Row

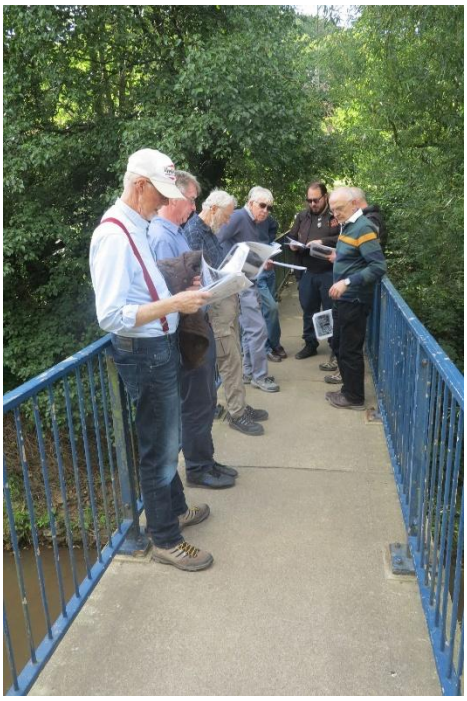
This is Beck Row, and as can be seen on the map, there was another row of houses behind. This was the turning point for the Zig-Zag railway. The train would turn around here, and go back the way it came, but coming to the junction near Primrose Hill, would be directed up the west side of the valley. The route of the Zig-Zag railway up the west side of the valley can be seen in the photo on page 21.

With all the photos and maps available in the archive, industrial archaeologists can piece together how the village looked in the early 20th century. The old photo of Beck Row was taken by a photographer on top of the railway embankment, so that's why the photo is looking down. Because of the importance of Skinningrove, it was very heavily photographed and documented.

The Final Stop On The Heritage Trail, The Entrance To The Travelling Drift.

After passing Beck Row, we crossed the beck and continued through *Doorstep Green Park* to our final destination which was on the other side of the beck to the original entrance to the *Travelling Drift.* This was just 100 yards from our starting point in the car park.

Originally there would have been a bridge across the beck to allow the miners access to the mine. Because of the summer foliage, it was difficult to see the drift entrance, but in winter it is well exposed. You can then see the entrance to the tunnel and where the steps to the side used to be.



The photograph shows the Travelling Drift entrance with possibly a full shift including the “trapper lads”.

“Trappers” were usually the youngest workers underground, sometimes only 11 or 12 years old. Their job was to sit by the heavy ventilation doors and open them whenever wagons of ore passed through. Most of the time they sat alone in the dark, making sure the doors stayed shut to control airflow through the mine. For many boys, “trapping” was the first step into mine life. After a few years they might move on to driving horses, moving wagons, or even working alongside the men cutting ironstone. Land Of Iron.

Note: No helmets, but they do have Davey lamps, so the photo isn’t a very early one.

The reason the Heritage trail stopped here is because the distance of the trail (2½ miles) is the same distance a miner would have to have walked from the other end of Loftus or from Brotton to get to the mine entrance. The other point to note, is the work only started when the miner reached the working face.

PEEMS would like to thank Isaac for an excellent tour around Skinningrove.

The information provided was very interesting, and everything was put into context as only a walking tour can achieve. Highly Recommended!!

Please Note: The photos in this article are copyrighted to *Land Of Iron*, *East Cleveland Image Archive* and PEEMS, and should not be used without permission from the copyright holders.

Contact: If you would like to contribute to the Newsletter, the contact is:
Nevile Foster Tel 01751 474137 or e-mail nevf123@outlook.com