The History
Of
Astley Green Colliery

J.G.Isherwood

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Introduction

The Astley Green Colliery was situated 3 miles east of Leigh and 8 miles west of Manchester, about 500 yards to the South of the East Lancashire Road. Today all that can be seen of this once thriving concern is the Engine House of its No.1 Shaft, the Shaft Headgear, and two other buildings. Visitors to the site often look around and say "Why - was there a colliery here ?" so effective has been the land reclamation. It is only through good fortune that anything remains at all. For Astley has some claims to fame, the remaining engine house contains what was and now is one of the largest steam winding engines ever to have been installed in this country - and certainly the largest built and erected in Lancashire.

At the eleventh hour when the colliery closed in 1970 and the demolition contractors moved in, far sighted officials in Manchester and Wigan managed to get the N.C.B. to leave the engine alone along with its headgear and outbuildings.

Unfortunately at the time, apart from boarding up the windows that was all that was done and so the engine remained locked away, prey to vandals and the weather alike until some ten years later a group of steam engine enthusiasts were given permission to move onto the site in the hope that eventually a heritage museum of some kind might be developed on the site, around the old pit head. A herculean task confronted the group, a task still going on to restore the old winding engine to some semblance of its former dignity and beauty. The engine house was restored, glazed and services laid on by the generous hand of the Greater Manchester Council without which nothing could have been done. Even so, it is difficult for many to imagine what it must have been like when the engine was an essential part of the pit - so this story is for them. It tells the story of the pit, and its equipment, from its beginnings in 1908 up to the final closure of 1970.

Beginnings

The Astley Green Colliery was originally owned by the Pilkington Colliery Company, an offshoot of the Clifton & Kearsley Coal Company Limited. This had been set up in 1867 as the Clifton and Kearsley Coal Company by the Pilkington and Evans brothers of St.Helens The Limited Liability Company was set up on the 31st. July 1885 with an authorised capital of 400,000 in 10 shares. The Collieries owned by the Co. included Wet Earth, Spindle Point, Outwood, Newtown, Moss (Unity Brook), Manor (Kearsley), Robin Hood and Botany Bay (Clifton). Of these Moss, Robin Hood and Botany Bay had already closed by 1900, and Manor by 1905 so the company's older collieries in the Irwell valley were reaching the elderly stage and their closure was in sight when their workable reserves ran out in the early 1900's. Attention was therefore drawn to the relatively untapped coal measures to the south and west - at Astley Green.

Unlike most of the older mines to the north of it, Astley Green did not begin on any outcrop, but was a deliberate attempt to gain access to the coal seams which lay to the south of the older workings.

The coal seams which outcropped around Tyldesley and to the north dipped down in a southerly direction at approximately 1 in 5. Thus most of the working collieries lay where the main seams were only at a shallow depth beneath the surface, extending southwards and deeper as the shallower and nearer resources of coal became exhausted. The coal could be worked "down dip" with respect to the access points in the shafts or "insets" and require haulage up towards the shaft, or it could be worked "up dip" above the shaft inset position and thus be easily dropped to the roadways which fed the shaft. At Astley, much further to the south than any of the existing collieries, the coal seams lay beneath a thick layer of alluvial deposit known to contain water and any attempt to work them would require a deep and expensive shaft to be sunk before any coal could be got.

Previous attempts to exploit the coal measures which lay beneath the ground to the south of Tyldesley near to the Bridgewater Canal had foundered on the fears of the canal owners that subsidence would damage the canal, as well as the problem of the water. A Liverpool firm got as far as sinking a trial borehole about 3/4 mile to the south of the eventual colliery site in the late 1890's but this met with such prodigious quantities of water that it was abandoned. 11 years later when Astley was being sunk it was still visibly gushing water to the surface.

The Pilkington brothers were not deterred, however, and by 1908 all was settled and work began on the colliery site, just to the north of the canal in the part of Astley known as Higher Green.

Two shafts were to be sunk, some 90 yards apart as had become the practice, the intention being to develop the RAMS and TRENCHERBONE series of coal seams in an area bounded by the Mosley Common Colliery to the east, the Parsonage and Bedford Collieries to the west, and the Kirmishaw Nook, Gin, St. Georges and Cleworth Hall Collieries to the north. To the south the site was bounded by a downthrow fault known as the "Lions Bridge" Fault. It was thought that this fault would throw the Rams series - the Binn, Doe, Crombouke and Rams seams - down opposite the horizon of the Trencherbone and Victoria seams to the north of the fault. In consequence the No.2, or east, shaft was intended to draw off the Rams series coal north of the fault, and thereafter become the main man-riding and ventilation shaft, all the output being drawn up the No.1 shaft which was to be equipped appropriately.

No. 1 shaft was designated the "downcast" shaft, cool fresh air was to be drawn down it and passed around the workings to the foot of the No. 2 shaft, the "upcast" shaft whose head would have to be enclosed and connected to a ventilation fan by a passage called the "fan drift". Any coal raised by this shaft would have to pass through air locks at the head and the insets so as not to "short-circuit" the air currents. Hence the intention to use the No. 1 shaft for all coal raising once the colliery was properly started.

The Sinking.

In 1907 the Clifton & Kearsley Coal Co. Ltd. put down a borehole 30 feet from the centre of the intended No.1 shaft. This was 2 feet in diameter and as well as proving the ground was intended to help with the drainage of the site. The surface layers were proved to consist of some 30 feet of stiff clay, underlaid by 99 feet 4 inches of drift, these were then followed by 310 ft. 7in. of the Permian sandstones and marls.

Unfortunately, the contractor responsible for the borehole buckled the metal lining of the shaft while fitting it and as a result it took some four months to cut through the obstruction and complete the work, this had serious consequences as we shall see.

Several eminent engineers were consulted concerning the best method of sinking the shafts down through the water-soaked and loose layers to the rockhead, the principal methods being the Kind-Chaudron boring method, the Congelation method and the drop shaft method.

The Kind-Chaudron and similar methods which used a huge "bit" which descended under its own weight were out because of the loose nature of the ground, the unsupported sides of the shaft being unstable.

The Congelation method consisted of boring a series of holes outside the circle of the intended shaft. These contained pipes through which a freezing liquid was circulated, freezing the ground around them and allowing the shaft site to be excavated. This process tended to be expensive due to the cost of the equipment for supplying the freezing solution, the boring of the freezing holes etc.

The Dropshaft or Sinking Drum Process involved forcing a cylinder through the ground and excavating within it. This had been used for many years, but it was considered that Messrs. Haniel & Lueg of Dusseldorf had brought it to perfection. In view of German expertise in the latter two methods, a visit was made to Germany to visit Haniel & Lueg and the doyen of difficult shaft sinking, Herr Reimer, whose book "Shaft Sinking in Difficult Cases" remains a classic on the subject.

Herr Reimer was emphatic in his preference for the freezing process, but as this was considered too expensive, it was decided to go for the Dropshaft method, and Messrs Haniel & Lueg undertook to supply the necessary equipment and materials. Work began in earnest on site early in 1908, the foundations were laid for the sinking engine houses and construction of the other essentials began.

The "First Sod" Ceremony to celebrate the start of sinking of No.1 shaft took place on May 9th. 1908, Lady Pilkington doing the honours. This was followed by the construction on the cleared surface of a temporary wooden ring in which 26 equi-distant holes were bored on a radius of 13'9"

Brickwork was then built up on this to an inside radius of 12'5.5", 5ft. high, with a second wooden ring on top. Bolts 1.5" in diameter and 6' long were pushed through the holes in the two rings and into the underlying clay. A reinforced concrete block 50' across and 3.5' thick was then laid around the brickwork.

Sinking into the clay commenced on May 11th. A bricking platform being placed in position round the bottom of the shaft when the depth reached 17 feet. Construction of a brick collar on the concrete platform, and a brick pillar within the shaft then commenced, the pillar being reinforced by extensions to the original bolts as required . All construction lifting at this stage was carried out by a long jib crane to avoid any disturbance to the growing pillar which might cause it to stray from the vertical, as it would form the guide through which the metal "Tubbing" of the shaft would be forced downwards.

When the 25' level was reached, a cast iron "Anchor-ring" was laid, and connected by 4" bolts to a second "Pressure-ring" at the top of the collar. The Pressure-ring was also locked into the collar by skew bolts, rendering the whole into a single solid mass. The weight of the whole collar and pillar amounted to 2200 tons, the anchor-ring weighing 25 tons and the pressure ring 45 tons.

Hydraulic jacks were then hung from the pressure ring. These were 6" diameter by 22" stroke and were fed from a steam driven pump via an accumulator. Water was supplied at a maximum pressure of 5 tons per square inch, giving each jack a force of 150 tons over its stroke. Thus the total force exerted by the jacks amounted to 1800 tons - hence the massive brickwork !

With the sinking engines ready, it only required the construction of the sinking headgear and the necessary pulleys and supports before sinking proper could begin. The cast-iron tubbing to be used was heavy, each segment was 3" thick, 5' deep and weighed 2 tons. As the stroke of the jacks was less than the depth of a ring of tubbing, two shorter "make-up" rings were used at the surface until each ring of tubbing had been forced down sufficiently to place the next on top of it. To handle the tubbing, a circular rail was laid around the top of the shaft, and H-section girders laid to run on these. This structure supported an electric crane worked by two motors whose task it was to manoeuvre the plates into position beneath the jacks. These first plates had a smooth outer side to follow the brick pillar, there being lugs on the inside to bolt them together. 11.5' below the pressure ring was the bricking scaffold, which supported the men working on the tubbing etc. This had a central hole 8ft. square to allow the "hoppit" or kibble to pass through. Also suspended below this were the pumps to remove water from the shaft. These were of the Ellison "Pulsometer" type - and were essential once the shaft bottom was below the water table which lay

about 18 ft. below the surface. The water was conducted over the shaft collar in a large pipe which discharged into wooden troughs laid across the ground towards the canal.

The sinking proper began on September 8th. 1908 and continued without any trouble until October the 18th when, with the cutting shoe about 14.5 ft below the shaft bottom, as usual, it would not advance any further despite the full force of the jacks. On investigation, sand was found to have risen some 10 feet above the shaft bottom. This was too soft for the men to work and so the hoppit was replaced with a contractor's grab which was able to work through the water which now had risen above the sand. The inrush of sand had interfered with the pumps and these had had to be removed for cleaning. The grab was successful and many tons of sand were removed from the shaft, enabling the cutting shoe to be advanced another 22". However, when the pumps were restored and the water cleared away again on October 21st., the sand was still some 9 feet above the original shaft bottom ! The grab was therefore kept in work until October 25th. when the ground became more solid.

On making an examination, a large cavity was found on the borehole side of the shaft, and as a result sand was being washed up into it from below and behind the cutting shoe, which was now 16'4" below the shaft bottom. The only immediate solution to protect the shaft was to place a ring of tubbing outside the sinking ring and place bags of cement against them.

The surface now began to subside into the cavity, whose origin was ascribed to the problems with the borehole, the buckling of the lining allowing the cavity to form in the period while the obstruction was cut through. The subsidence caused the brick pillar to begin to tilt, and to help arrest this, large quantities of tubbing and other ironwork were hung on the side of the collar away from the borehole and thick liquid cement poured down into the borehole by night and day. The ground fell under the concrete block by 2.5 feet and had to be filled.

While this was going on all haste was made to try to get the tubbing down to the Permian marls where it could be anchored before the effects of the tilting caused the anchor bolts to bind against the tubbing rings and prevent any further progress. Fortunately fate was with them and the cutting shoe entered the marls on November 13th. 1908. To be safe, the cutting shoe was forced further down until the 26th. of November. The effect of the tilting was seen when the 4-inch anchor bolts were found to have been bent nearly eight inches out of the vertical in 28 feet depth. At the same time, when the shaft bottom was cut from beneath the cutting shoe, the tubbing was found to be self supporting, despite its 514 ton weight.

The hydraulic jacks, their connections and the anchor ring were removed to be used at the No.2 shaft, and the upper layers of tubbing above the water table within the brick pillar were also removed. It had been intended to re-use the cutting shoe and pressure ring also, but in view of the troubles, it was decided to retain the pressure ring to re-inforce the pillar and collar. It was also felt safest to leave the cutting shoe in place rather than risk any disturbance to the strata by removing it.

As the rest of the tubbing would hang from the cutting shoe already in place, the electric crane, H beams and rail were also removed to the No.2 sinking. The headframe was then altered to handle the tubbing rings and lower them down the shaft, the pulsometer pumps were replaced by an Evans sinking pump capable of the full lift to the surface in one stage rather than the several which had been needed with the Pulsometers whose intermediate tanks had added to the obstructions in the shaft.

To join the underhung tubbing to the cutting shoe, an unforeseen event, 1 inch thick boiler plate was fastened round the outside of the cutting shoe and an inner ring attached from which a special ring of tubbing was suspended by 1 7/16" diameter bolts. 0.5" thick wooden sheeting was fixed between the

tubbing ring and the bottom edge of the cutting shoe. The tubbing used below the cutting shoe was still referred to by the sinkers as "German" tubbing, even though it had cast lugs on the outside to help it key into the cement (in other words it was "English" tubbing) because it was supplied by Haniel and Lueg. Above the cutting shoe, the inside diameter of the tubbing was 23 feet, while below it it was to be 21 feet.

The tubbing to the cutting shoe was found to be less than 4 inches out of the vertical despite all the problems, and conical joint rings were made to centre the rest of the shaft.

To avoid further dangers, a borehole was driven ahead of the bottom of the shaft to warn of water, but it was not until after the 10th. March 1909 at a depth of 283 feet from the surface that the Evans steam pump was put into action. Up to that time the hoppit had been sufficient to bale out the water. At 292 feet a second feeder of water was struck, bringing the "make" of water in the shaft to 30,000 gallons per hour. This was handled after much difficulty by placing a "V" ring at 303 feet on pitch pine wedges to stop the water flowing down behind the tubbing. The water from above the "V" ring was conducted down the inside of the shaft in 1.5" pipes to the intake of the sinking pump. Cement grout was then poured through oblique holes in the tubbing below the "V" ring, the "V" ring and water diversion giving the cement time to set hard. When it was set, the pipes could be removed and the holes plugged. By these methods the "make" of water was reduced to under 5000 gallons per hour. At 379 feet a second feeder or 25,000 gallons per hour was dealt with successfully by the same method, but only after severe difficulty. However this was the last major feeder to be contended with in the sinking. Despite the tubbing having been made to follow very close to the pit bottom and thus being exposed to the blasting, no tubbing was damaged in the process.

A true "English" wedging curb was laid after the last of the sandstones had been passed, the make of water by this time only amounting to 7,000 gallons per hour. The idea being to form a seal with the surrounding rock so that no water could enter the shaft. This would allow conventional brick lining to be used for the rest of the depth. The last ring of "German" tubbing immediately above it was made with an especially strong flange to resist the wedging. The wedging curb was laid at a depth of 446'2" on a dark shale on one side and a strong rocky warrant on the other - this was not felt to be the best foundation. The curb was laid on September 9th. 1909 and "keyed up" with cement on September the 15th, stout timber wedges having been forced between it and the tubbing ring until the full force of a hammer could not drive them any further. The water was pumped from behind the tubbing as already described, until September the 24th., when it was felt that the cement would have set well enough. Thus the pipes were removed, the holes plugged and a pressure gauge fitted. Unfortunately the pressure rose rapidly to 40 p.s.i. at which point it spurted out through weak places in the joints of the tubbing and under the wedging curb ! Clearly, the wedging was not a success, so the tubbing was continued down further and a second wedging curb laid on October 28th. 1909 on flaggy rock some 12'10" below the first curb. The pumping this time was continued for longer to give the cement more time to set. Pumping was halted on November 28th. at 10 a.m.. By 4 p.m. the pressure had risen to 60 p.s.i. and by the 3rd. of December it was 100 p.s.i. and once again the joints sprung leaks - but not as badly as before. Further cement grout was poured into place behind the tubbing and it was found that the pressure was regulated by the quantity of water being pumped at No.2 pit.

Sinking below the wedging curb then continued, the shaft below that point being brick lined. The Worsley 4ft. seam was reached on April 7th. 1910 at a depth of 772'4", while sinking was completed by the end of 1912 through the Crombouke (1602 ft.), Rams (1752 ft.), Trencherbone (2481 ft.) and Cannel seams to an absolute pit bottom 2670 feet below the surface. References at the time make it clear that this was not the final intended bottom, and it was hoped to eventually sink deeper still to the Arley seam. This was, however, never to be fulfilled.

Construction.

Fortunately , a series of photographs taken on the surface during sinking operations and during the first few years of the colliery's life give a vivid picture of the site and its development. The earliest shots were concerned with the setting up of the sinking engine for the No.1 shaft, its capstan winch, which was immediately in front of it, and the building up of the brick collar.

By August, 1908, four of the large Lancashire type boilers had been set up and were being hand fired in the open, coal being shovelled out of wagons on to the ground for stoking. Only a rough timber shelter had been erected to shield the stokers from the elements. At least one other boiler from Yates & Thom was on site and was lying close by the others on its side, awaiting erection. Coal and the tubbing rings appear to have been brought to the site by the Bridgewater Canal in barges. The coal was in boxes which were lifted out of the barges by crane and loaded onto standard gauge wagons which ran around the site. Latterly the process was reversed for a time when the colliery was in production ! By February 1909, the sinking headframe was being erected over the No.1 shaft and a reciprocating type air compressor was being erected in a new building to the east of the No.2 shaft sinking engine.

Both headframes were complete and in use by April 1909, spoil from the shafts being discharged from the "bank" level onto dumb-buffered side-tipping wagons which were being used to build up the pitbank to the south of the shafts and between them and the canal. This was by this time about half the height of the shaft collar.

Work on the permanent house for the No.1 shaft winding engine seems to have begun early in 1909. In accordance with the original plan, this was to be equipped with an engine large enough to handle the whole of the output of the colliery. The engine contracts for this and the No.2 engine were let to Yates & Thom of the Canal Ironworks, Burnley, who had also supplied the initial boilers to the site. The ancilliary gear was contracted out to Fraser & Chalmers of Erith, Kent, a G.E.C. subsidiary.

There is some doubt as to whether, in fact, F. & C. actually supplied the gear direct, or sub-contracted it out to the firm of N.L.King of Nailsworth, Glos., who supplied these for engines not of F. & C.'s own manufacture.

The boiler house was completed by August 1909, or at least completed enough for the then existing boiler set. There were now eight boilers, five in work at any one time. The flue gases were exhausted either directly to the 156ft. high western chimney stack, or via a bank of Green's Economisers. The firing floor had by now been covered over with a corrugated iron shelter for its full length, while on the opposite side of the firing aisle from the boilers a raised brickwork bunker arrangement allowed railway wagons to discharge their coal directly into the bunkers from the track above.

The following month saw the No.1 engine house built up to working floor level, so the work of erection of the engine could commence.

The No.1 Engine house was the main building project from then on, the roof girders were being placed in December 1910, the travelling crane of 20 ton capacity which ran along the top of the walls already being in position and in use handling the various engine parts.

April 1911 brought the pitbank up to the height of the brick collar and the permanent headframe for the No.1 shaft was being erected by the firm of Head Wrightson & Co. around the sinking headframe, thus allowing the work in the shaft to go on umimpeded.

Behind the boiler house, work had begun on the power house, a Bellis & Morcom steam driven generator being set up on its brickwork pier in July, while in No.1 engine house, erection was proceeding apace. A photograph taken in September 1911 shows all the auxiliaries to be in place in front of the drum. The drum itself was unlagged, there was, as yet, no floor to the engine house and while the trunk guides were in place the cranks and the various rods were not in place.

By July 1912, all was ready, the engine house and its massive occupant were complete, as was the headgear. This was of lattice steel construction, the sheaves being supported some 98 feet above the ground. The sheaves were 20 ft. in diameter and the whole frame weighed 120 tons.

The last few, unfortunately undated, photographs show the final operations. One shows the headgear standing naked to the air, the sinking headframe finally absent from beneath it, the guide ropes for the cages hanging limply from its upperworks. Tramways can be seen undulating across the uneven surface of the pitbank from the lip of the shaft. These led towards the temporary screen by the No. 2 shaft. These were arranged at the southern edge of the pitbank, and discharged straight into standard gauge wagons alongside. The photographs also show the containers of coal still in use, now ready to be transferred to canal barges.

Railway wagons could now reach the site directly from a main line railway, the London & North Western's line across Chat Moss from Manchester to Liverpool. The laying of this mineral line across the Astley peat bog had had its own share of problems, the bog being up to 28 feet deep in places. The solution had been to lay the track on piles of brushwood "in a manner very similar to that employed by George Stephenson" when the Liverpool and Manchester Railway was originally constructed. The colliery railway joined the main line by a triangular junction from which it plunged off directly northward towards Astley. It climbed a bridge over the Bridgewater Canal and swung eastwards toward the colliery sidings, from which reversal was needed to reach the colliery proper. At the extreme eastern end of the site a the tracks swung north and then reversed again to a small canal wharf and raised tippler bank. This had originally served a tramway from the Tyldesley collieries until the arrival of the Lancashire & Yorkshire Railway in that town had rendered it obsolete.

Astley Colliery 1913-1928.

As a "new" colliery, Astley received a number of official "visits", especially in view of the difficulties that had attended the sinking - a description of which had been read by Messrs. Charles Pilkington and Percy L.Wood to the Manchester Geological and Mining Society in 1910 and which was repeated verbatim in the transactions of the Institute of Mining Engineers. These and subsequent occasions on which Astley was brought into the spotlight have enabled this account to be written.

A visitor to the colliery in 1913 informs us that the winding engine exhausted into a Rateau Morison accumulator, this being situated at the western end of the power house. The latter contained a 220 kW Bellis & Morcom inverted vertical steam driven generator, a Musgrave "Zoelly" 400 kW mixed pressure steam turbine fed with steam from both boiler house and accumulator and a Bellis & Morcom air compressor of 1000 cubic feet per minute capacity driven by a 200 h.p. motor. Both the generators provided 3-phase A.C. electricity at 2000 volts, 50 cycles.

The main compressor, to the east of the No.2 sinking engine house, was steam driven, manufactured by Ingersolls. This cross-compound, with steam cylinders 17" and 38" in diameter by 42" stroke, supplied 3,000 cubic feet of air per minute from air cylinders 20.25" and 32.25" in diameter.

The No.2 shaft permanent winding engine, itself a cross compound of half the size of the number one engine, as befitted its role as man riding and materials haulage, was on order from Yates and Thom, but owing to the outbreak of war in 1914, this was not erected and the original sinking engine was used to wind the shaft, a small pair of cages replacing the hoppit which had been used during the sinking. Legend has it that the engine had already been constructed at Yates & Thom's works and broken down for transport when the word came to stop it, and so it remained throughout the war. This sort of story can be heard in connection with cotton mill engines, so it may well be true in this connection also. Certainly the N.C.B records refer to the date of construction of the engine as being 1913.

To provide ventilation for the initial pit working, a "Schiele" electrically driven fan was installed close by the top of the no.2 shaft collar. This was 12 feet in diameter and driven by a 100 h.p. motor.

At No.1 shaft, with its engine designed to handle the whole output of the colliery, the shaft arrangements were impressive. The cages each had three decks and were designed to carry twelve tubs of coal, four on each deck. The tubs weighed 10 cwt. and had a maximum capacity of 15 cwt. of coal. Unusually for an engine equipped with a bi-cylindro conical drum, which had the ropes on different diameters at each end of the wind, the pithead was not arranged for the simultaneous discharge of tubs from all levels of the cage at once, but required each deck to be brought "to bank" one after the other. This could have proved a problem in that due to the rope for the cage at bank being on a different diameter of the drum compared with the rope from the cage at pit bottom, the cages would have moved by different distances ! The problem as solved in an interesting manner. At the pit bottom inset, a pair of hydraulic platforms were arranged, connected by a valve under the control of the onsetter at that point. When the cage arrived at pit bottom, it was landed carefully on the table so that the lowest deck was level with the inset. The engineman then wound off extra rope sufficient for the total movement which would be needed. He was then free to carry out his own decking operations in conjunction with the banksman at the pithead. Meanwhile, at the pit bottom, the tubs or men were exchanged on the bottom deck, and then, under the control of the onsetter, the platform was lowered to bring the second deck of the cage into line, at the same time raising the empty platform by an equivalent amount. That deck was changed and the whole operation repeated for the top deck. By this time the decking operations at pit head would also be concluded and when all was ready, the engineman could gradually take up the slack and wind normally. The heights of the three decks were unequal, the top deck being the most commodious at 6ft.6in. high, while the lowest was only 4ft.6in. high. Men today still remember the uncertain feeling of descending in the cramped confines of the lower deck into the bottom of the shaft while the two upper decks were filled above their heads.

The initial screening plant was only a temporary affair, and the coal transport system reflected it, coal from No.2 shaft was landed directly at the screens, while that from No.1 had to hauled down to No.2 and the empties back again. This soon came to an end when the permanent screens were constructed by Messrs. Heenan and Froude between the pitbank and the canal, roughly half way between the two shafts. The screen house was of steel girder construction, built over the railway tracks to simplify loading. It was designed to handle 3,000 tons of coal a day. The tubs were raised to the tipping level by creepers from both pit heads. They then ran by gravity through the house to the tippers, executed a "U" turn and then returned under their original entrance to a second set of creepers which returned then to their respective pit heads. Initially there were 7 picking belts and appropriate screens. The whole arrangement was electrically driven by no less than 21 motors of various sizes. The plant was extended in 1915, eventually bringing the capacity to 300 tons per hour.

The Schiele fan was supplanted in 1914-15 by a steam driven fan of the "Indestructible" type manufactured by the Walker Bros. of Pagefield Ironworks, Wigan. The fan was 28ft. in diameter and 9 feet wide. It was driven by one of Walker's own cross-compound steam engines with rope drive. The

fan and engine houses were sited to the east of the No.2. shaft buildings and were capable of giving up to 700,000 c.f.m. against a resistance of 7 in. water gauge, although the developing colliery required only a small part of that.

The boiler plant was between and to the north of the two winding houses, and had considerable expanded with the development of the colliery. It consisted, by 1919, of some 13 Lancashire type boilers, each 30 ft long and 8 ft in diameter. Only the firing floor was covered in, with corrugated iron, the boilers themselves only being protected by brickwork, the main steam ranges being exposed above them. The flue gases passed through banks of Greens' Economisers and then up the chimneys, these were equipped with induced draft fans at the base and were 6ft.6in. in diameter inside, one reaching 156 ft. into the sky, the other 154 ft. Originally all the boilers were hand fired.

With the development of the colliery, the electricity requirements had also increased and the power house eventually boasted a 2MW turbo-alternator by Metropolitan-Vickers and a 1MW mixed pressure turbine by Fraser & Chalmers which drove a Lancashire & Dynamo Crypto Co. alternator. The mixed pressure turbines were fed from a bank of Rateau-Morrison steam accumulators which took the exhaust from the winding engines and the fan engine at 5 p.s.i.

East of the No.2 Engine house, the reciprocating compressor house's initial capacity was increased by the addition of a second 2000 c.f.m. reciprocating compressor manufactured by Tilghman and electrically driven. This was accommodated by doubling the width of the compressor house.

Development of the Trencherbone and Crombouke seams was well established by 1913, but things did not go as planned. When the Lion's bridge faulting came to be proven, it was found to have a throw of only 70 feet, about half what had been anticipated to enable the Rams series to be worked from the Trencherbone inset level. As a results slants to the South East and South West were driven in the 1920's at 1 in 3 through the fault from the Rams inset level. This involved bringing up the whole of the output from the area up the slants and winding it in No.2 shaft instead of No.1 with the difficulties that that caused in working the tubs through the airlocks. The slants were worked by continuous over rope haulage, the tubs being lashed onto the moving haulage rope by chains.

The Formation of Manchester Collieries

By 1928, the Clifton & Kearsley Coal Company Ltd. had closed Wet Earth and Spindle Point collieries, Outwood Colliery was being worked by a subsidiary, the Outwood Colliery Co. Ltd., while Newton had been sold to the Bridgewater Collieries Co. who also owned the Sandhole, Mosley Common and Ellesmere collieries. In the following year, Atherton Collieries Ltd (Fletcher-Burrows), the bridgewater Collieries and the Clifton & Kearsley Colliery Co. Ltd., together with its subsidiaries, were merged to form the Manchester Collieries Company, the new formed organisation promptly embarking on a plan of both expansion and consolidation.

In 1930 a new length of railway line was laid down to link the Astley colliery with the old Bridgewater collieries line at Boothsbank tip, about 3/4 of a mile to the east of the pit. This linked Astley into the main colliery railway network and also gave it access to the workshops at Worsley. The most immediate effect of the junction was to close down the tippler at Astley, on the site of the old tramroad tippler, as the basin at Boothsbank was much larger and allowed the boats to turn.

The following year a coal washing plant of 150 tons per hour capacity was erected by Nortons Tividale some distance to the east of the main colliery buildings, to be followed by a dust extracting plant of the Norton Collins type which was installed at the main screens. At around the same time, a pulverising plant

was constructed between the pit bank and the boiler house, to deal with the waste coal. The dust extracted from the screens was added to the output from the mill, and this was fed to some of the boilers which were fitted with air blowers to burn it.

The expansion of the workings brought about by the slant development had vastly increased the compressed air demand at Astley, and to cope with this, two additional air compressors had been installed. These were erected in the power house and consisted of a mixed pressure turbo-compressor by Fraser & Chalmers and a high pressure turbo-compressor by Hick Hargreaves of Bolton. The electrical output of the colliery had also been augmented by the installation of a 1 Megawatt mixed-pressure turbine also by Fraser & Chalmers, fitted with a Lancashire Dynamo Co. alternator. The distribution system was altered and a substation built to enable power to be bought in from the Lancashire Electric Power Co. if needed. In 1933 an overhead power line was erected between Astley and the Kirmishaw Nook pit power house, to the north west, it is thought that this was primarily due to problems with the Astley 1 MW alternator in that summer, the new line allowing either pit to supply the other if occasion demanded. Nook also supplied the bulk of the electricity requirements of the Bedford pit nearer Leigh, and the more adjacent Gin Pit.

The Manchester Collieries Company policy came to be to reduce the amount of compressed air used in its pits, as the transmission of electricity was much more efficient. As a result of this, a larger turbo-alternator of 2 MW capacity was installed in the power house at Astley, manufactured by Metropolitan Vickers and G.E.C.

A comprehensive pithead baths, canteen and medical centre was designed for the Miners' Welfare Committee by C.Kemp A.R.I.B.A., their architect and constructed in 1935-36 at a cost of over 24,000. The site chosen was at the entrance to the Colliery Yard, by the side of the road through Higher Green. The layout followed then then most modern practice and shower bath cubicles, heated lockers for clean and pit clothes were provided to accommodate 2000 workmen. The building, with the exception of the officials' baths, was paid for entirely by the Miners' Welfare Committee. The men were to subscribe 3d. per week towards the cost of running and maintaining the baths, the Company subscribing an equal amount. As a "send-off" the Company presented each user during the first week with a "bathing slip, towel and soap."

The make of firedamp (methane) in the colliery was found to be very high, especially when first entering virgin areas and the ventilation often became a problem - unfortunately with fatal consequences. An extensive alteration of the underground ventilation system was begun in 1936, bringing the fan delivery to 273,140 cubic feet per minute at 6.7" water gauge resistance, 1/3 of which was stated to be reaching the coal faces.

This necessitated heavy work throughout the colliery, this seriously affected the productivity from 1938/39 and for several years. However, by that time, large scale developments, described below, absorbed the man power which had been engaged on the repairs and short term maintenance.

Development too, was by 1939 becoming a pressing problem, but 1939 brought something far worse than expenditure...

The 1939 Disaster

The news was announced to the local populace by the "News Chronicle" for Wednesday, June 7th. The headlines read:
"FIVE MEN DIE, FOUR INJURED, IN PIT FIRE EXPLOSION"
"OFFICIAL, HURT HIMSELF, SAVED FAINTING MAN"

The story was given as follows:
"Five men were killed and four injured in a series of explosions while fighting a gob fire in the Crombouke Mine of the Astley Green Pit this afternoon."

"Tonight, with the bodies of the men - officials and trained fire fighters - still unrecovered, it was decided to seal off the affected part of the pit to prevent further loss of life."
"The manager of the pit, Mr. J.H.Hewitt, was killed while leading the fire-fighters, his under-manager, Mr. W.Middleton was seriously injured."

"Manchester Collieries, Limited, owners of the pit, tonight issued the following statement: Manchester Collieries deeply regret to report that following a series of slight explosions in the Crombouke Mine at their Astley Green Colliery, five men have lost their lives.
J.H.Hewitt, Manager of the Pit, Allenby Street, Atherton.
G.Griffiths, Under-looker, of Coach Road, Astley.
J.Keegan, fireman, of Henry Street, Tyldesley.
Eli Smith, colliery, of Tyldesley Road, Atherton.
William Warhurst, colliery, of Second Avenue, Astley.

"Four other men have been got out of the mine injured, only one seriously."

"Following a conference with His majesty's Inspector of Mines and the Miners Agent, it was decided to prevent possible further loss of life, to seal off the district affected."

"The injured men are:
W.Middleton, of Henfold Road, Tyldesley, Under-Manager.
John Laughton, Under-looker, of Leigh.
Frank Morris, of Lime Street, Tyldesley.
William Smith, of Manchester Road, Astley.

"A gob fire was first reported at 12.30 a.m. today, and the night shift of 1000 men was withdrawn from the pit face. Forty men, officials and trained fire fighters were left to fight the fire. They made such progress that by 4 a.m. it was possible for the morning shift to descend. Between 4 a.m. and 6 a.m. 1000 men went down the shaft to the various mines which make up the Astley Pit. During the morning men were withdrawn from certain sections, and a party of officials, including the men killed and injured, descended. They were working in C panel of the Crombouke Mine, where the gob fire had occurred earlier in the day. Men continued to work in the Rams mine on a lower level, and at 1.30 p.m. news of an explosion reached them.

John Skise (25), a collier, of Manchester Road, Tyldesley, told me that he was working in the Rams mine.

"I did'nt hear any explosion, but there is such a racket that it would have to be tremendous for us to hear it in our seam."

"A fireman came and said: "There's trouble in the Crombouke mine. There are men there. I want you lads to come and help me get them out."

"When I got there it was very hot and there was smoke hanging about. I helped to carry Mr. Middleton out. He seemed to be very badly injured. He had got out Frank Morriss, one of the other men. Although he was hurt himself, he had dragged Morriss, who was fainting for 200 yards."

"At one stage he stopped to release air from a pipe into Morriss' face to revive him. They told me that Bill Smith was further along, but the fireman said there was too much gas to go after him."

"Three chaps said they'd have a go and came back with Bill Smith. They were George Marger, William Hulme and Richard Sutton."

"I think Mr. Middleton's effort was the bravest thing a man could do. He was in no state to walk himself, let alone help others."
Another rescue workman told me that the 40 men left to fight the fire used sand and a tank holding 199 gallons of water.
"Those men are heroes" he said.

Following the explosion a call was sent to the mines rescue station at Boothstown and men equipped with every device for fighting the fire were hurried to the scene.

Ten rescue men, who had been putting on their breathing equipment as they were being driven to the pit immediately went down. They were met by other explosions before they had time to reach the five men now given up as lost.

The Astley Green Pit is one of the most modern in the Lancashire Coalfield, and is at present employing 2000 men. It was sunk in 1908 and this is the first serious accident there has been.

Mr. Hewitt was promoted from Under-Manager about two years ago. His father retired some time ago from the position as Manager at another coal pit. Mr. Hewitt leaves a widow and two sons.

The father of Eli Smith, one of the dead men, was killed in the same pit in 1920. Eli Smith was married with one child. His brother, Harry, is also employed in the pit.

There was a notable absence of women waiting at the pit head; at one time not a woman was to be seen among the crowd. I understand that Manchester Collieries immediately informed the relatives of every man who had not escaped unharmed. This prevented the pitiful scenes so frequently a feature of colliery accidents.

Tonight lorry loads of bricks and sand are being rushed to the mine. On the busy East Lancashire Road, a few hundred yards away, a police officer was on traffic duty to facilitiate their quick arrival. The bricks and sand are being sent down in the cage to rescue men, for strengthening the barrier which has been built to prevent the fire from spreading.

Men who arrived at the colliery to prepare for work the afternoon saw a notice chalked roughly on the wall. It read "No afternoon shift today."

Tonight several hundred sightseers gathered in the roadway near the pit head. Few of them were relatives."

The Inquest into the deaths took place in late July, when the Jury returned a verdict of "death from misadventure". The bravery of the men was remarked on by the Coroner. Additional information concerning the disaster was given by Edward Humphrey Browne, the Mining Agent. He said that Hewitt, the dead Manager, had rung him up to say that in the early hours of June 6th. a shot had been fired and some smoke had been seen at another place. Hewitt was satisfied at the time that the smoke was fumes from the

shot. However, after a subsequent message, Browne put into effect the emergency organisation. Twice he spoke to Hewitt over the telephone, but he was emphatic that he could find no trace of the fire.

Browne was about to go underground himself to see when a final message was received, "It has gone off again. It has blown us off our feet." Two men volunteered to go down with him. It was very dusty and difficult to see when they reached the Crombouke delivery level. The safety lamps were burning, allbeit low, and the canary was still alive. When they reached the haulage engine, Browne's lamp went out and when another was passed forward the canary appeared to be dead. The party were unable to go further and returned to summon the rescue teams.

The first team were instructed to look for the missing men, but just before they reached the coal face there was a fall and they were stopped. They had passed three bodies on the way and offered to go and get them out. They were told not to, and a second fresh team was sent in instead to see if there was any trace of fire. Browne remained with the stand-by team, and then short circuited the fresh air into the return, to starve any fire of oxygen. He was certain that had the first team been allowed to return then they too would have been lost.

William Granby, the Under-Manager, said that when he went down the mine after the accident there had been a temporary lull in the ventilation and then a sudden reversal of the current. This was the usual sign of an explosion.

A Rope Change with a Difference.

To give an idea of the scale of problems involved in mining, mostly hidden from the public eye, and lost forever when a mine is closed, the following description is worth recounting.

The "south-west" slant was an over-rope haulage driven by a 150 h.p. electric winding plant. This hauled 10 cwt. tubs a distance of up to 1540 yards up a varying gradient, the steepest section being 400 yards of 1 in 3, only 120 yards being level at the bank head. The seam gradient was 1 in 6 in the direction of the slant, but the presence of the faults led to several severe changes of gradient in the actual trackbed. The winding rope was 3,400 yards long, 1.25" in diameter and was of the "Lang's Lay" flattened steel wire rope type, manufactured from best plough wire with a breaking strain of 65 tons.

The slant, in the early 1940's, was hauling about 500 tons of coal per shift on a 6 shift per week basis, plus a certain amount of dirt from repairs and development work. The tubs of 15 cwt. capacity were attached to the rope by wrought iron lashing chains of 0.5" diameter and 12 feet long. The tubs were arranged in "gangs" of two full tubs when ascending and four empty tubs when descending.

The slant delivered the tubs to the No.2 (upcast) shaft, via an airlock, at the Rams Inset, this being approximately 1900 feet from the surface.

This was the main winding point in the No.2 shaft. The No.1 (downcast) shaft inset was at a depth of 1670 feet below the surface, and from this inset a main intake roadway had been driven on the full dip (i.e. at 1 in 4) and connected with the slant at a point about 50 yards inbye of the slant hauler.

A new rope had been installed at Easter 1939, but this was badly worn at a splice joint and a new one was required. This old rope had been installed in a single length with only one splice, due to the heavy duty required and it was intended to fit the new one in a similar manner. However, the original installation had been done by lowering the rope down the No.2 shaft with the No.2 capstan engine. The end had been spliced to the old rope and then wound round by the hauler, the old rope being cut off in short lengths,

coiled and then sent up later. This had taken 30 hours of difficult and arduous work. This could not be afforded under wartime circumstances and somehow the task of rope changing had to be completed in the time available - Saturday afternoon and Sunday without interfering with the normal winding arrangements for the weekend shifts.

In the event, a complex operation was evolved and carried out with the No.1 capstan engine lowering the new rope down No.1 shaft. This was diverted at the Rams inset and joined on to the end of the old rope after that had been cut. The No.2 capstan engine lowered a cable to the Rams inset in that shaft which was attached to the other end of the haulage rope. Then, as the No.2 capstan engine hauled up the old rope, the No.1 capstan engine paid out the new one until it was in place. All that required doing then was the splicing. Work had begun on the lowering operation at 12.30 p.m. on the Saturday and was completed by 10 p.m. the same day. The rope was spliced on the Sunday morning, the length of the splice being some 120 feet - 10 yards for every inch of circumference. The time taken was no less than 5 hours.

During the following week the stretch of the new rope was taken up, this being about 12 yards. The whole operation was one of the last operations of this type at Astley, as the development of the tunnels described below removed the need for the slant haulages, and the No.2 shaft was put to other uses.

Astley was relatively little troubled by the war, although one engineer remembered the problems of carrying a red hot metal yoke for the winding engine across to the engine house from the forge at dead of night, the yoke glowing for all to see ! In August 1940, several bombs fell to the south of the Colliery, but it was not until long afterward that it was discovered that they had, indeed, been aimed at the pit. The Company was shown a German map which indicated the colliery by a red outline and which was headed accordingly.

New Developments

In 1940 the Rams series reached by the slants were becoming worked out above the slants and the seams were dipping away from the fault, although the Binn seam was in process of major development. This engendered a considerable re-organisation. A pair of level tunnels were begun in 1941 from the No.1 and No.2 pit bottoms to strike the Binn, Crombouke and Rams seams to the dip on the south side of the fault. Simultaneously with this scheme, it was decided to use the No.2 shaft, its lower "production" life over again to develop the "Worsley 4 foot" seam, which had hitherto remained untouched, as it was both heavily watered and also worked by the older collieries to the north, their workings extending to about 110 yards to the north of the Astley shafts.

An experimental room-and-pillar working was begun to the east in 1944, in which seepage of water from the old workings proved troublesome, so much so that the main intake and return roadways had to be flanked by a parallel drainage road to the dip side. After a period of trial, the main roads were carried forward in the solid ground to a point where the old workings began to curve away towards the north, when a further experimental working was opened out. Therafter conditions became progressively easier and after the limit of the old workings was reached, it was possible to open out a longwall face and begin normal production.

Profiting by this experience a second district was opened out to the west and it was found possible to work this by longwall methods also. Although a number of "gushers" of water were struck to the dip, these produced a constant make of water so with the provision of suitable pumps, the water could be controlled. Locomotive haulage was not considered at this time because of the problem of levels, especially on the far side of the "Chaddock" fault. This and other schemes were "interrupted" by Nationalisation.

Some experimental work was done in the Worsley seam using different explosives. In particular powder was found to be superior to the normal "Cardox" explosive in the preparation of the coal. In addition in view of the large numbers of "fizzers" - misfires - with Cardox, Astley carried out careful trials with heaters in order to ascertain whether the lower or higher range of electrical resistance being used gave the best results.

The trials were inconclusive, but certainly revealed the need for greater care underground and careful selection by the manufacturers.

The accident rate among the Manchester Collieries was described as "distressingly high", indeed in 1946 Astley was 11th. in the league table of accidents with only 949 man-shifts per accident. Gibfield was the top of the league with no less than 1533 man-shifts per accident. Some of the causes were failure to use the support rules for the faces, falls of side dirt or coal, withdrawing of supports and then working under the unsupported roof !, insecure scaffolding and not taking shelter from shot-firing. An intensive safety propaganda campaign was initiated. Loud speaker broadcasts being given at changes of shift, the first arrangement being made at Astley. However, as it was thought that the banksmen might be distracted if the broadcasts were made at the pitheads, they were given in the lamprooms.

The introduction of Skip Winding.

The Worsley opening was a success and as output increased it became necessary to provide suitable pit bottom and winding arrangements to handle it. The No.2 shaft was originally equipped in a similar manner to the No.1 with 3-deck 12-tub cages, however, as No.1 shaft was the downcast and No.2 the upcast, it was desired to maintain the haulage in intake air.

In cage winding, this involved passing the tubs through air locks at the pit bottom and at bank, a labour intensive operation involving 26 men alone! However, after investigation of other plants, it was decided to install a skip-winding system in the No.2 shaft to wind purely from the Worsley seam. In this system no working through air-locks would be required, as the skip would remain in the shaft and could be sealed at loading and unloading to suitable bunkers which would act as airlocks.

There would also be a considerable saving in man-power, and so, despite the known fragility of the Worsley coal, it was adopted.

The meeting of the No.1 and No.2 Pit workings early in 1946 meant that there would be no problems with the Rams coal, hitherto wound up No.2 shaft, as this could now be diverted to the No.1 shaft via Browne's Tunnel at No.5 South-West Level. The proving in the South-West Rams Mine had confirmed that the last fault encountered was of some 170 yards upthrow to the South. The White and Black seams had been "seated" in the proving.

Installation of the new pit bottom was done without interruption to the existing cage winding system. Over the section due for excavation to form the necessary pocket chambers, half rings of tubbing were let into the shaft wall and all operations carried out behind them. The shaft gear, cages etc. were all altered over the summer holiday of 1947, work beginning on the Friday evening July 4th 1947 and the first coal was drawn by skip on the 23rd. August. During the changeover period, the No.1 shaft was placed on a double shift to maintain production.

Below the skip loading level, the remainder of the shaft was accessed by a small electric winder - the "emergency winder" it was called, while at the surface, the screening plant was extended to handle the new coal, the new section being constructed by Messrs. W.H.Barker & Sons.

Nationalisation and after.

Britain had elected a Labour Government in 1945, and as a result the dreams of the miners' unions became reality. They had been pressing for many years for the public ownership of the collieries and at midnight on the 31st. of December, 1946, the Coal Industry Nationalisation Act became law, and the collieries became public property. Thus 1st January 1947 was "Vesting Day", when the Manchester Collieries Company ceased to be a private concern and became just another district of the National Coal Board.

The news of the forthcoming events had been distributed to the Colliery Officials in the previous February in Issue No.13 of the Manchester Collieries' Newsletter, written by E.H.Browne, the General Manager. At that time the Act was still only a Bill going through the Committee Stage. He said, "The Bill does not, as yet, give any guarantee to staff but it is hoped some change mey be made in it..... The Nationalisation of the industry is a step of such major importance that it will call upon the greatest efforts of all concerned to carry over the changes, and as far as officials of this Company are concerned I have no doubt that they will not spare themselves in this respect."

The coal owners were compensated by national arbitration and by a valuation board. In preparation for this event, the Manchester Collieries had had a massive technical report on their assets compiled by Humphrey Browne, their General Manager, in which the details of the colliery plant and development proposals up to the vesting day were clearly laid out.

Astley figured largely in these proposals as one corner of an integrated programme involving Mosley Common, Sandhole and Newtown collieries. This was intended to access the "extensive south coalfield" whose estimated resources were put at over 143 million tons, this excluded doubtful seams and those which had not been worked before. The limit in depth of working was given as 4,500 feet, although this was considered to be a conservative figure.

The facilities of the colliery were described as "excellent", an adjective applied to the condition of shafts and also machinery ! In 1946, production had totalled 401,810 tons, these being produced as follows:

Worsley (developing)	16,742
Binn	135,240
Crombouke	29,073
Rams	49,141
Trencherbone	171,614

The winding capacity was quoted to be of the order of 2,500 tons per week, excluding Saturday and was expected to rise to 3,000 tons by 1952. This was based on single shift winding, and it was remarked that that could be increased at any time, the plant not being fully stretched even then, or by double shift winding.

In the South West Trencherbone haulage an electrical man-riding train had been put into use. In No.1 shaft the transport system was scheduled to be changed from the 10 cwt. tubs to 3 ton-mine cars by 1952, one carried on each deck of the cage. At the heapstead, the old handling arrangements were to be done away with to permit fully mechanical handling of the mine cars. The actual winding gear and headgear required no modification and the shaft was said to be "admirably suited" to the task. At the pit bottom, mechanical handling was also to be installed as that was to become the principal haulage level, the No.2 shaft being used only for ventilation and emergency egress. Interconnection with the combined Mosley Common, Sandhole and Newtown workings was to provided as soon as was convenient at the level of the

tunnels and the return horizon at 633 yards depth. The two levels were common to the whole scheme and the workings were intended to be integrated between them. The haulages in the No.1 pit were intended to be on the "continental" principle served by locomotives. Staple shafts were to be driven connecting the various seam horizons and delivery roads were to be fitted with spirals for lowering coal to the main tunnels and cages for raising men or materials. This was not considered suitable for the friable Worsley coal, where smaller 1 ton tubs and trunk conveyors were to be used.

By the vesting date the two tunnels from the pit bottom, that from No.1 shaft being known as "Richards'" tunnel and that from No.2 being "Browne's" tunnel, had been driven for 2,440 yards to the south, the two tunnels being 16 ft. by 13 feet and 13 feet by 10 feet respectively.

Following the introduction of the mine cars in No.1 pit, as proposed, a simpler layout was devised to shuttle the mine cars directly from the cages to two parallel tipplers, the coal being fed to the screens via conveyors. This involved the cars being mechanically propelled from the cage to the tippler running up "kick-backs" behind the tipplers and then returning to await the empty deck of the next cage. One of the banksmen, Bob Mayo, was badly injured on this arrangement, when he was re-roading a mine car with his back to it when the hydraulic ram operated, knocking him down and breaking his thigh.

STEPHEN FARROW was a Grade 1 Deputy or Overman from 1957 to 1970, before which he had been a Coal Cutter. He remembered that on the Worsley 4-East face in the early 1950's they had some of the first Gullick hydraulic chocks - some 246 of them on the one face, worth millions even then. He was roused from bed one night by the duty man and rushed to the face, to find it collapsed along its whole length, burying the chocks, a Panzer Conveyor and a complete Anderton Shearer-Loader! On investigation, the relief valves were found to have failed, allowing the weight of the roof to compress the chocks to their minimum extent. To recover the materials the face had to be "dinted' and dug out. The chocks themselves could only be removed by "firing" as they were jammed between roof and floor. The result was that Gullick's fell out of favour with the N.C.B. and were told that until such time as they could guarantee their chocks performance no more orders would be placed with them.

In the Crombouke 1 west face, before it was abandoned, the coal was of very good quality, and free from faults so that cutting could proceed smoothly and efficiently. However there was one cutter who was just too "quick" and had earned the appellation "Mad" Jolly. Most operators ran the Anderton Shearer-Loader at a gentle walking pace around 10-14 feet per minute - but not "Mad" Jolly - he ran it on full air and power at around 28 feet per minute stalking along beside it as it tore along the face, coal pouring away from it onto the face conveyors.

Mr. Farrow, on duty at the pit bottom, always knew when Jolly was at work for very soon after the shift began he would receive a frantic call from the man at the Crombouke loading point where the conveyor coal was transferred to the 3-ton mine cars for the journey to the pit-bottom.

"You've done it again!" would be the complaint, "That mad man's at it. Its coming over here like a river!" And so it was, so fast and so thick that the loading point could not cope. Mr. Farrow remembers timing the loading with his watch. Jolly's coal was coming off the conveyor fast enough to load a 3-ton mine car every forty seconds. Trains consisted of 24 mine cars plus a diesel locomotive. When Jolly was at work the drivers had a busy time, all the pass byes and wagons had to be used to keep things running.

Farrow also remembers the fire of 1967 when an EIMCO loader damaged a cable and the face of Crombouke 3 West was set on fire. One of the men was unaccounted for when the face was cleared, and he and another deputy went in to look for hime. It was only after they emerged that they were told he had been found safe at

home. He had walked straight past everyone and gone home without saying anything. he was not popular as a result!

KENNETH TERRY was an apprentice and then fitter for a time at the age of 18 and remembers some of the men he worked with and the layout of the Power House around 1946, before he left for the Merchant Navy.

The Foreman Blacksmith was Harry Burton who lived behind the coalyard, he built all the trackwork and crossings etc., at the foot of the shaft and on the surface for the new mine car circuit at No.1 Shaft. The Foreman Fitter at the time was Percy Hope, who lived at the back of Maddison Avenue(?) Jacob Latham, who lived just past the bridge over the canal was the Engineer and Enginewright.

In the Power House, from west to east were:
1) A Bellis & Morcom set.
2) A Fraser & Chalmers Turbine, driving a generator.
3) A G.E.C. Turbo-Generator
4) A Hick Hargreaves Turbo Blower
5) Possibly another Air Compressor.
6) The Stairs to the lower floor & Switchboards.
7) Foundations (Probably used for the Armstrong Airbreaker)

To the south of the Power House, between it and the bunkers, was the Jackwell, while to the east end of the House was the water softening plant. The pulverised fuel fired boilers were the six nearest No.2 Engine House.

V.Keavney, who has described the Mine Car Circuit at No.1 Shaft, says that the cages could hold 30 men per deck. Mr. Keavney says that there were sidings on either side of the cages capable of holding three mine cars. The initial direction of movement into and out of the cages was towards the No.1 Engine House, where the full cars were rammed up a kick-back and then ran back round the outside of the shaft past the waiting empties to the single car tipplers. The car contents fell into holding pockets which diverted the material either to the run-of-mine coal conveyor or the dirt conveyor, as appropriate. From the tippler the empty cars ran up another kick-back before returning towards the cages. There were two separate circuits for the two cages, with a cross-over after the last kick-back to allow for changeovers. On the east side there was a double loop of track which by-passed the tippler and allowed other materials and stores to be run into and out of the cages. This connected with a vertical hoist by the side of the headgear, and via a triangle of track to a short incline between the two headgears.

Many men also remember the brazier set burning at the top of the intake shaft to prevent the formation of icicles at the shaft head, and their projectile like descent into the depths.

During the early part of 1950, investigations were made into the possibility of introducing pneumatic stowing at Astley and it was agreed to carry out a trial on the No.1 East face in the Victoria seam. The face was 255 yards worked in two parts. The seam was 3ft. 4in. thick with a daily output of some 438 tons. Pneumatic stowing had not been envisaged when the face had been laid out, but the presence of a middle level was convenient for the purpose. Excellent progress was made and stowing operations commenced on the 20th. of February, 1950. Only the Worsley seam dirt seemed unsuitable for use, but the rest of the pit dirt was deemed suitable for the job.

At this time, all pit dirt was being collected on the surface on a troughed belt feeding a 20 ton bunker. This was loaded via shaker shutes into lorries for disposal to the dirt fields - locally known as the

"rucks". Dirt for pneumatic stowing was extracted by placing 2.25in. square mesh in the shutes, the material run off being water sprayed and loaded into tubs for sending underground. After some trouble with fine dirt the mesh size was increased to 3in. square, but even so an occasional blockage was caused. Boiler ash and rubble were added which reduced the trouble, but eventually the best material was found to be the discard from the washery. The dirt was stocked underground during one winding shift and stowed during the other. The tubs were then passed on for use with coal in the normal way. The stowing machine used was of the Markham "Blastower" type rated at 120 cubic yards per hour.

The final method of dirt disposal, as related by Jimmy Jones, for many years the surface foreman, consisted of a fleet of "Internal Use Only" railway wagons. These were filled and shunted to the Astley Moss disposal site and by use of wagon tipplers, shutes and conveyor belts, the waste was carried and spread in layers by a large bulldozer. This operated up to three-quarters of a mile away, the bulldozer pushing dirt away in a radius of approximately 30 yards from the point of delivery on a 25 to 30 foot drop.

An "Armstrong Airbreaker" compressor was installed in the mid 1950's in the powerhouse, this supplied air at 12,000 p.s.i. for shot-firing purposes. The ventilation arrangements were also altered, an electrically driven Walker-Macard adjustable 2-stage axial flow fan, running at 333 r.p.m. was installed, driven by a 1,100 h.p. motor. This was fed by a parallel fan drift to the south of the original one, the steam driven fan was then put on stand-by duty in which it ran non-condensing. This was finally replaced in 1960, the old fan house being demolished, when an additional rotor was added in series with the first two, driven by a vee-ropes from an 800 h.p. motor. This combination forming a three stage fan could give 620,000 c.f.m. at 13.6in. water gauge. Messrs. John Wood & Sons of Wigan designed and built the additional unit which was erected and put into service during the four day September break. In 1965 this whole system itself became the stand-by fan when a new "Sirocco" type fan was installed on the site of and using the old fan drift, driven by a 2100 h.p. motor - this alone was capable of 630,000 c.f.m. and could run at higher outputs if required!

The existing screens and separate washing plant were superceded in 1959-60 by a new preparation plant adjacent to the original screens. This was fed directly by conveyor belts from both pit heads and could handle 400 tons per hour.

Methane tapping was introduced in the 1950's and while reducing the danger underground, after treatment, it was also use on the surface for feeding 5 boilers. 6 other boilers were fed by pulverised coal from the screens and pulverising plant while the remaining 5 were fed by Danks' chain gates. In 1961 the existing boiler plant was significantly augmented by a new Boiler which was erected to the east of the compressor house. It added a third chimney to the site, but little smoke as grit was extracted from the flue gases.

This was constructed by Bennis Combustion Ltd. Of Little Hulton and fitted with a stoker by Josef Martin of Munich. It was designed to burn the unsaleable slurry produced by the new screening plant as well as low grade fuel. The high pressure steam it produced was fed directly to the power house main turbine, and through a reducing valve to the main boiler house steam main. This soon became a cause of trouble as the vast load put upon the steam supply by the two winding engines going on and off load as they wound produced cyclic oscillations in the steam pressure, causing the water tube boiler to be worked inefficiently. One man from the "firehole" vividly recalls that when the No.1 winder started up, the pressure gauges on the first three Lancashire boilers nearest the engine simply dropped back against their pegs ! He also remembers the somewhat hair raising fire-lighting techniques used on the 'Dust' fired boilers. This seems to have involved pouring parrafine down a tube into the boiler onto burning paper and then turning the 'air' on which blew the pulverised coal into the boiler firegrate. Sometimes it ignited with a bang! Initial draught was controlled by the insertion of a finger into a small hole in the fire door!

The effect of the pressure oscillations in the steam main did not suit the turbine driven alternators and in 1963 the situation was remedied when ten of the Lancashire boilers were modified to act as high pressure steam accumulators on the Daniels (B.B.A.) system. Two additional low pressure accumulators were added at the same time. The modifications did not affect the availability of the converted boilers for firing, but did much to even out the demand for steam and hence the pressure fluctuations.

In No.1 pit the two main tunnels were extended further to the south through a second upthrow fault of 170 yards to intersect the Crombouke and Rams seams again to the south of the fault. At the same time tunnels were driven to the North of the No.1 shaft pit bottom to gain access to the Haigh Yard seam.

By October 1967 the colliery was producing 2,800 tons of saleable coal per day from 4 faces. These were distributed as follows: one in the Worsley seam, and three in the Yard seam with a standby face in the Crombouke seam as well as development areas in both Crombouke and Rams. Workable reserves were estimated at over 65 million tons at this time, which at a production rate of 732,000 tons per annum gave over 50 years worth of reserves. The following two years saw many changes in production faces, the Worsley and Yard seams proving the mainstay.

Four faces were worked in the Worsley seam - No.'s 4,5,6 and 7;
Two in the Crombouke - No.'s 2 and 3;
Four in the Rams - No.'s 2, 4, 10 and 12 with
Three in the Yard - No.'s 3, 4 and 6 as well as a new east development area there.

The output per man shift rose steadily during the perion from 36.2 cwt. to 44.1 cwt. while the workforce fell from 1575 to 1430 over the same period, the loss mainly being amongst the underground men.

The End.

Astley made headline news in the London Times in April 1969 when the news first surfaced that Astley was threatened with closure. It was described as a "criminal" threat. The proposal went before the Board in June that year, the N.C.B. being "embarassed" by the rise in productivity at the pit. In the previous year the colliery had actually made a profit. The pit was reprieved on the 12th. June 1969, but on conditions and the men went in during their July holiday to up the output. The condition was that before the end of the year the pit had to show an output per man shift of no less than 50 cwt. ! To this end the Manager called a number of "Face Conferences" starting with the Worsley No.5 East teams at which representatives for the area, the Unions (One of whom was Joe Gormley) met so that everyone including the men, could have their say - but it was, in the end, not enough, and the colliery was deemed uneconomic to operate.

British Rail, one of the largest customers for coal had ceased using coal with the withdrawal of its last steam locomotives in 1968 and so the wet, gassy pits of Lancashire all came under scrutiny, being compared unfavourably in cost terms with the pits in Yorkshire and elsewhere.

Astley Green colliery officially closed in 1970, the last coal being wound in No.1 pit on the 3rd. April. The coal preparation plant continued in use until October, treating coal from other pits on the railway network and for treating coal which had been in stock. For weeks afterward, however, the engines were still at work on site, lifting equipment and winding "dirt" for backfilling. After the final demolition, only the No.1 shaft headgear and its engine house were left along with the old lodge and garage. However, evident for miles were the effects of the colliery's existence; the Bridgewater canal still at its old level, but now surrounded by high banks to support it across the sunken landscape, a mute testimony to the tons of rock removed by Astley's tubs and mine cars.

The shafts were capped and chutes let in to their sides so that slurry from other collieries in the distract could be tipped down to help fill the deep shafts. This indignity went on for nearly ten years until the site was vested in the present group.

In view of the wholesale closures and the traumas surrounding them in the last few years, it is perhaps difficult today to imagine the feelings then. Perhaps the Astley men were lucky to leave at a time when employment was still high, though it is unlikely they would think so at the time.

J.G.Isherwood 9/9/90