

THE CLAN DOWN PASSBYE

John Robson

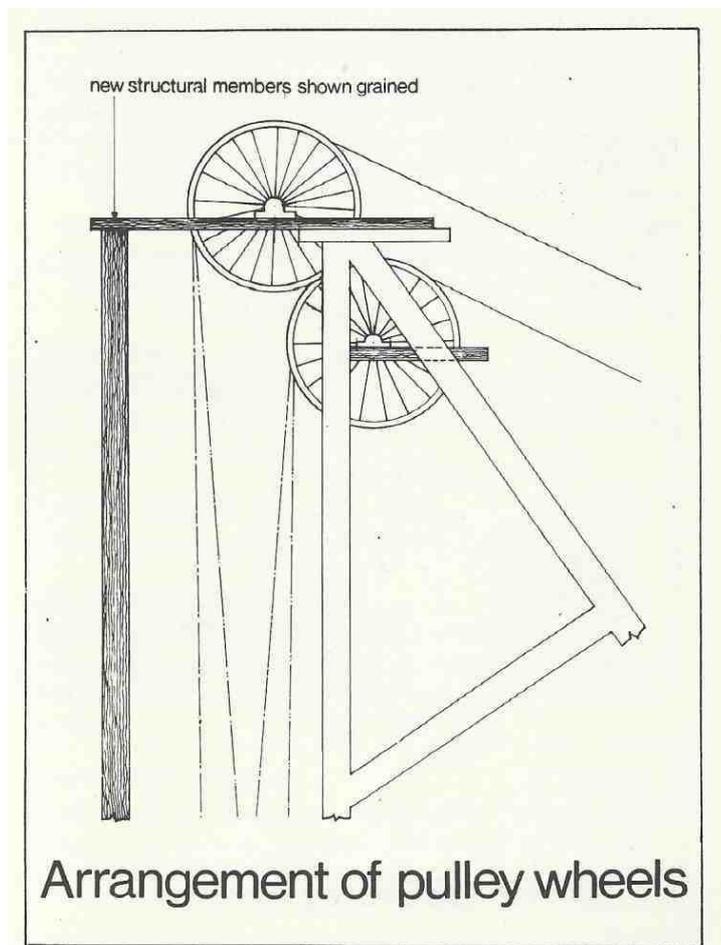
(Clandown Colliery, a mile north of Radstock (ST 680 560), was started in 1801. Because of severe faulting of the strata in this area, coal was not reached until 1810, at a depth of 1200 ft. The engine shaft was commenced in that year and eventually reached a depth of 1,437 ft, which was then deeper than any other colliery in Somerset. Like most Somerset colliery proprietors, those at Clandown adopted the economic expedient of sinking a narrow shaft, the engine shaft being only 5 ft wide, tapering to even less at the bottom. This made it impossible to introduce the later colliery practice of winding two cages in the same shaft, which helped to balance the load on the engine and also made possible an output twice as high as that in a narrow shaft. After almost a century of chequered existence, the proprietors at Clandown decided in 1900, when Mr George Batey was the Colliery Manager, to make a 'passbye' in the shaft so that double-cage operation would be possible. Mr Batey was responsible for constructing this unique arrangement, which remained in use until the colliery closed in 1929. This account of the passbye is provided by Mr John Robson, who was for several years under Manager at Old Mills Colliery. Although he did not know the passbye himself, he had access to people who did and he has written this study on the basis of personal discussions and notes. The study is part of a longer essay on coal mining practice in North Somerset. - Editor)

I was working in Kent and attending Dover Technical School on Saturday afternoons. It was during the tea-break that the subject came up when a Somerset man mentioned a shaft there with a passbye in the middle. It brought forth much laughter and many queries. Was there a man in the shaft pushing over? (An operation usually required in some self-acting inclines). I am afraid we made rather a joke of the matter. When I eventually went to Somerset to work I found out that it was a solid fact and definitely no joke. The Clandown Colliery winding shaft was unique in that it had a passbye in the middle and, by skilful use of guides, worked similarly to a self-acting incline.

The manager at Clandown Colliery in 1900 was a Mr Baty, a name which crops up constantly in Somerset mining (whether it is the same family or not I cannot say). He was faced with the usual problem of making a profit. His output was limited by the capacity of the winding shaft which had only a single cage, and he had no doubt realised he could not get more output off the face, whilst the wages could not be forced any lower. The only place that was open to increased efficiency was the winding. If he was winding two shifts, it meant double costs on all coal handling around the shaft, both underground and surface, and also extra labour on underground haulage. It was very obvious that if he could double the shaft capacity he would be on to a good thing. Where or when he worked out his problem is not known, but knowing the strain that Colliery Managers experience, a lot of notions would have come to him during the insomnia which many of us suffer from. Doubling the capacity of the shaft

could have been done several ways. The cage could have been made twice as long ie: four decks instead of two. This would have required (1) a deeper sump, (2) higher headgear, (3) stronger engine and (4) stronger rope. Next he could, with some effort, have put in skip winding. The skip would have had capacity for more than twice the amount of coal that the two tubs held, but would have required a loading bunker underground and some method of emptying the skip at the pit head. The tub weighing-machine would have to be put underground and he would then have needed to devise some means of winding the men up and down each shift. Both the ideas would be considered; and both would have been rejected on the grounds of cost.

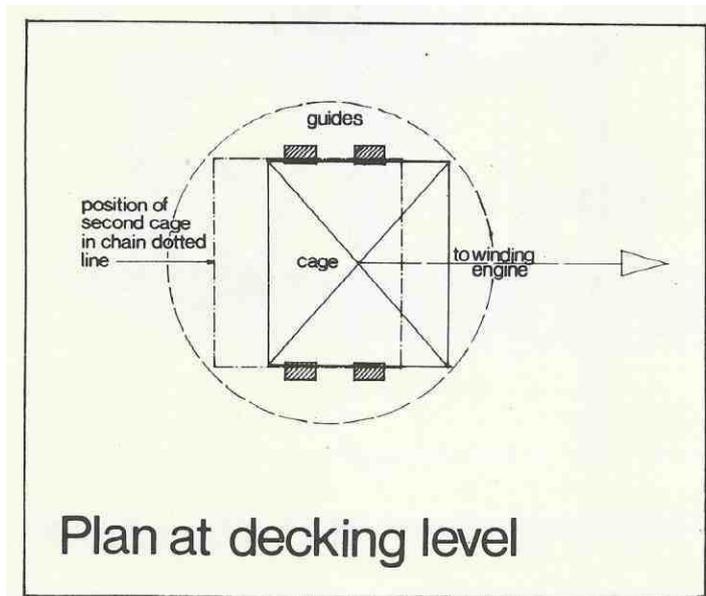
He would have cast longing eyes at those collieries where the shaft diameter allowed two cages and balanced winding and this must have increased his determination to double his shaft capacity. All his rising inclines underground would be self-acting, where the loaded tub would pull up the empty tub, with a passbye at the half way stage. On this system his mind came to rest. The method would not require a stronger winding engine: in fact a balanced load would help the engine. All that would be required would be one more pulley, one more rope, and a slight alteration to the rails at



the pit top. The most difficult part of the idea was the increased diameter of the shaft for about 45 yards above and below the centre or passbye position of the shaft.

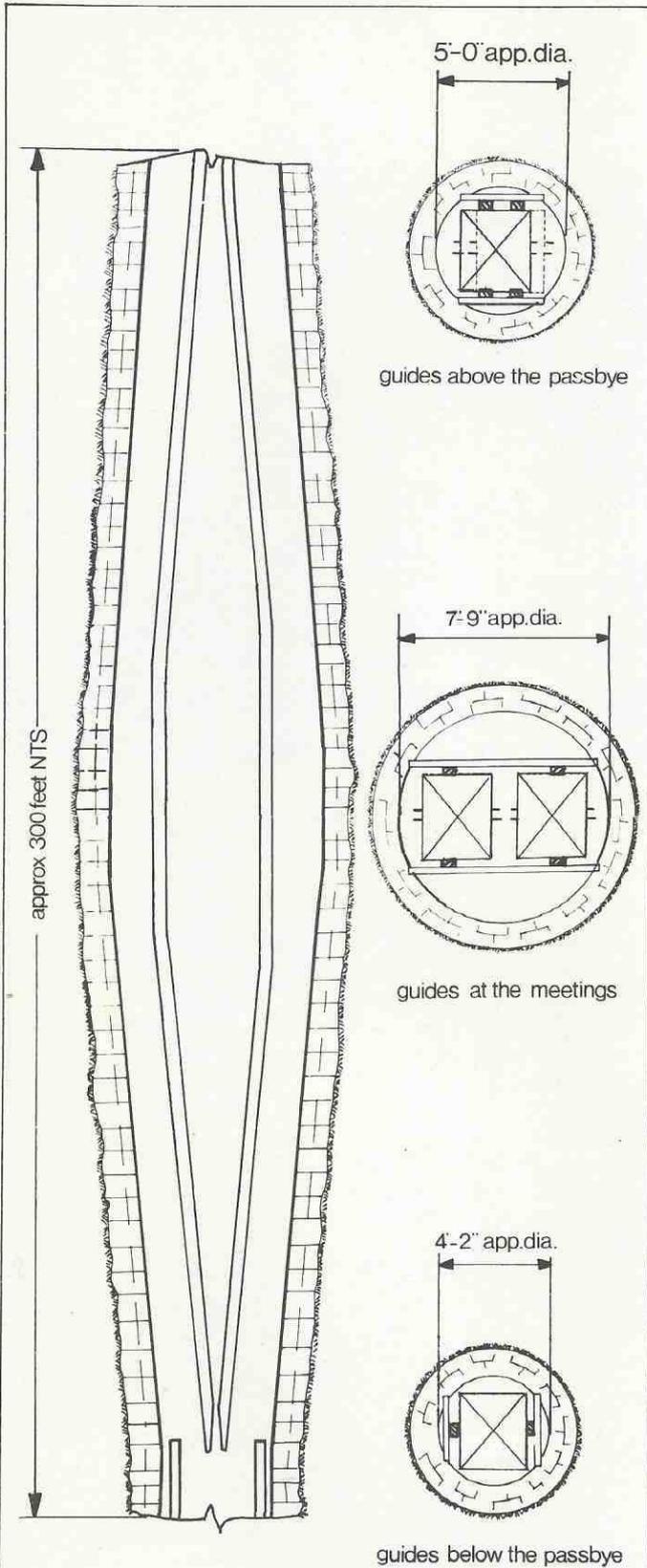
The winding engine drum was obviously capable of holding the entire rope without any overlapping. The drum could be possibly about 16 ft diameter and would easily accommodate another rope, winding on as the other wound off. So that presented no problem but, as one rope wound on the top of the drum and the other wound on the bottom, another rope slot had to be made in the front of the engine house. It was obvious that another pulley-wheel would be required. The original wheel must have been fixed with the bearings directly supported by the main vertical upright. This in the new arrangement would have to be moved more to the shaft centre necessitating an extra support. The second wheel could not be accommodated on the same level, the only other place it could be positioned was in between the other vertical member and the back stay, some eight or ten feet below the top wheel; as far off centre as the top wheel was the other way. On consideration the completed reconstruction must have caused the Manager great concern, as it looked far from robust. Possibly the weight of the cages was its only salvation in a gale, but it stood for many years. The work of that part of the project presented no problems to the Colliery carpenter and blacksmith. When considering this work I would like to remind the readers that at this part of the century a week's holiday was unheard of and except for the occasional Bank holiday there were no prolonged empty pits to allow repairs or alterations to be done.

The next step was to make arrangements at the surface landing to accommodate the extra exit from the shaft, and to realign the guides in the shaft so that there would be separate guides for the two cages leading into and from the by-pass. Guides were not introduced in the Somerset shafts until after the mid-nineteenth century. A considerable number of years of winding without guides at Clandown would have severely restricted the output and required careful shaft examinations and maintenance. It was a grim necessity for, there to be two sets of guides in and above the passbye to the surface. That was the first extra cost in the major list the Manager met, after the extra cost of the rope. He



possibly acquired these extra guides a few at a time as costs permitted. It will be noticed that the extra guides could impede the entrance to the cage, so they would finish at the decking level and start again immediately at the height of one deck. The cage, being a two decker, would always be in the guides, whilst the top deck would be changing the bottom deck would be in the guides, and when the bottom deck was changing, the top deck was in the guides. Up to this time the cost of the conversion would have been spread over from month to month. The work would have been proceeded with, a little at a time, as labour and money was available. The manager would have employed a carpenter for the hundred and one jobs necessary on a colliery and also a blacksmith. These, with labourers, would get all done that we have discussed so far. Did the Manager get the remainder done the same way? He could not have stopped production for even one day. The remaining work consisted of enlarging the shaft in the centre and the approaches to the centre. This passbye was 270 ft long or 135 ft above and below centre. Quite a few shafts in Somerset were unlined as, in fact, miles of branches or tunnels in the grey sandstone were unsupported and did not need any support. I am informed that the Clandown shaft was lined with stone and was repaired meticulously as soon as any damage was found. No false economy was used on the shaft construction. At this time there was no cable down the shaft, or rising main for the pumping of water. The water was transported up the shaft in tanks in the cage, the bottom deck only being used. To fill the tanks the cage was submerged into the sump at the shaft bottom, and the water filled itself into the open top tanks. As may be supposed plenty of water slopped out on the journey up the shaft. The men riding down from the surface in the other cage, when eventually installed, got a good soaking due to the rising cage going out of vertical when leaving the passbye. These types of conditions in the shaft would not be tolerated by the miners today. The water got to the shaft sump by means of pumping up the incline, which was 500 yards to the bottom where there was a sump which held two shifts-make of water. The water was pumped up to the shaft sump during the night shift when the shaft was available to lift it. This pump was motivated by an endless rope driven by an attachment on the incline haulage engine (a common practice in most old coalfields). The hauler was steam driven, the steam being raised on a boiler at the pit bottom. The smoke went up the upcast shaft which was part shaft and part incline. The hauler did not have a very heavy duty, the incline being of a very easy gradient, and in 500 yards the measures began to rise. The hauler could have been brought down the shaft in small pieces but the boiler could not be reconstructed underground. Its furnace would be the means of ventilating the colliery, a method still used at Old Mills Colliery until 1944.

I have included the above digression to emphasise once again the problems that faced the Manager. The shaft was in use practically the whole of the 24 hours. When did he widen the shaft for the passbye? I am sure the widening did not present any engineering problems but organising the work would be quite a task. The masonry removed would have to be sent to the surface, cleaned and eventually reused, with extra supplies. This would be the usual oolitic stone commonly used for surface buildings as well and very durable. A protective platform was circular and made of metal slightly less diameter than the shaft masonry. The platform would fit on the



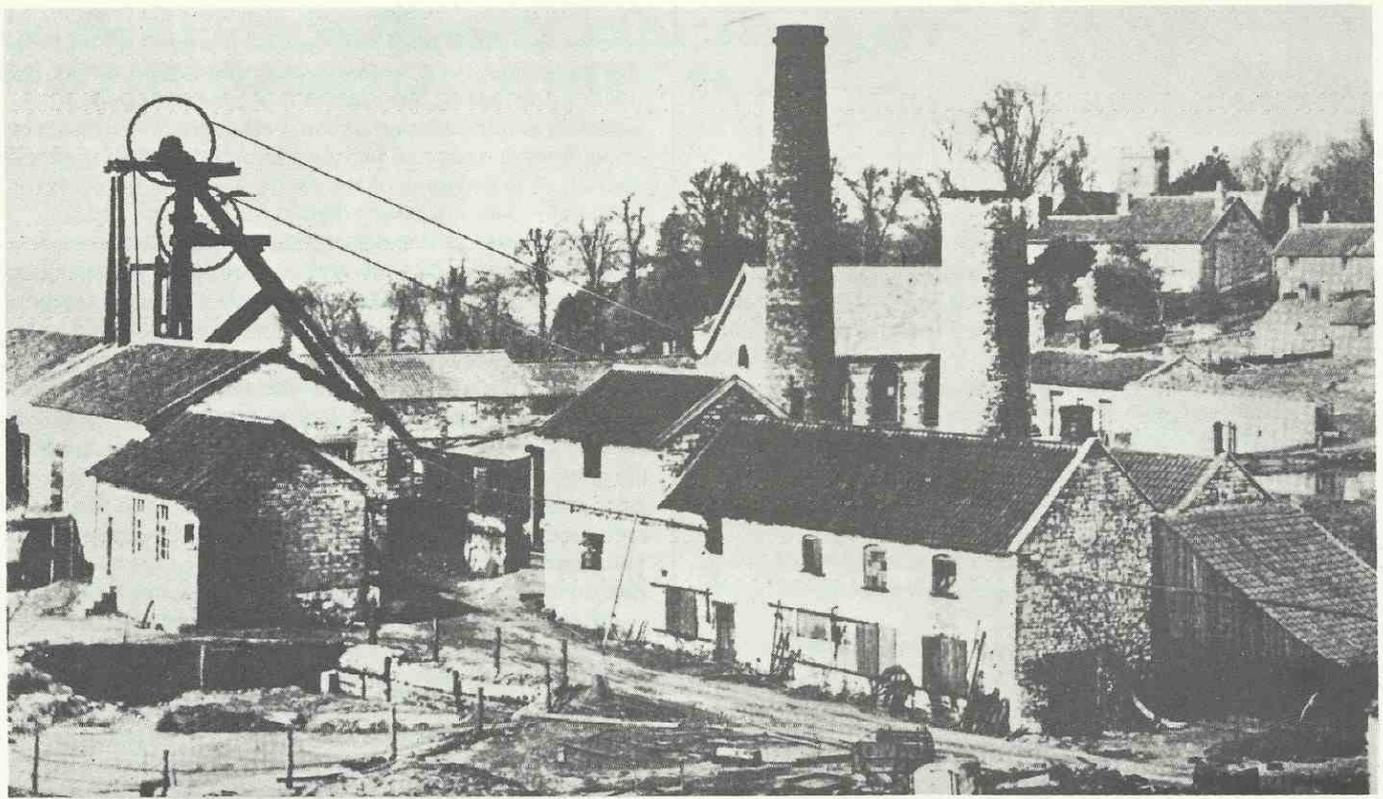
Clandown Colliery shaft sections showing passbye and guides

masonry, its chief purpose being to protect the masonry and prevent any debris from falling down the shaft, and it could also be used as a landing platform. If it was not colliery-made it was made locally, although at that time with shaft widening and installation of the shaft guides the above piece of equipment would be fairly common in most mining districts. The widening of the centre 270 ft of the shaft for the passbye was a gradual tapering to the centre at about half an inch per yard and then tapering back at the same rate below centre until the normal shaft diameter was reached. In the part 120 ft below centre to the pit bottom the original guides were retained. These were situated so that they were in contact with guide shoes on the side of the cage east and west, or in other words not on the sides of the cage where the tubs entered and made their exit. The guides above and in the passbye were north and south, or contacting guide shoes on the side of the cage that the tubs entered and made their exit. There was a set of guides for each cage from the surface to the bottom of the passbye. The tapering of the guides into the meetings was so gradual that one could hardly feel the cages going out of line. The guide shoes on the side of the cage to contact the guides on the bottom portion of the shaft were plumb in the middle of the cage sides, the cage in the bottom part of the shaft being a tight fit. When the ascending cage was approaching the lower part of the passbye it would have to select its individual guide with the cage shoes. To do this the shoe would have to be off centre at least the width of the guide. The guides were tapered like a railway point which would give smooth and gentle entrance to the guide shoe.

There was one occasion when the two cages were in collision in the shaft, and in 1975 Mr J Fear was still living who was in the cage at the time. He only suffered shock, but the crown of the cage had been forced apart though the rivets still held.

It may be that the reader asks, why change the position of the guides below the passbye? It would have been more satisfactory for the guides to have been continuous from the top to the bottom of the shaft. Unfortunately due to the unsettled financial position at the time of the sinking of the original shaft the bottom half of the shaft was of less diameter than the top half. Possibly there were several different companies of sinkers employed at different times, as and when the necessary funds were available.

The shaft at Clandown was well lined with good stone masonry, not usually used in shafts and roadways when passing through the grey sandstone. This grey sandstone was massive and contained no fossils, cleats or joints, nor did I ever see any fissures in it. It was better put together than anything man made. Lining a shaft sunk through this material was gilding the lily. Clandown shaft, which was sunk on a fault and also on a very tight budget, would have taken advantage of any length of grey sandstone which presented itself. The sinking then was through weak and faulty ground which necessitated the lining of the shaft. When commencing the enlarging for the passbye by removing the masonry it was found to be weak ground. No shot firing was necessary, the ground being excavated by hand picks alone. Hardy's patent pick had not arrived at the coal field by that time. When the picks had to be dressed all the lot had to come out through the smithy. With Hardy's pick only the blade, which was detachable, came out. The black-



Clandown pithead early in this century showing the two pulley wheels used to operate the passby.

smiths in Somerset were the most excellent I ever met for sharpening and tempering tools: this was a God-send as the tools would not have to be brought out of the pit so often. The passbye was formed and in full use in 1900. From then until the end of the life of the colliery several different industrial phases were passed through. From 1900 until 1913 the increased efficiency could just keep pace with the competition, at a time when the British Isles had one and a half million miners. The years from 1913 to 1919 most probably gave the colliery a shot in the arm which carried the concern into the late 1920s when the boom began to fade.

Mr G Batey, the Manager, became a Director in 1905. He did not make a fortune out of it: in fact for some years the colliery made a loss. In the 1923 Coal Trades Directory a Mr Wilson was Manager. Even before that, in 1908, Mr Batey had ceased to be Manager. He did not reap much success from his efforts in installing the passbye. During all these alterations, complicated at times as they must have been, this wonderful achievement was accomplished without the loss of one shift coal winding. The men who did this work in the shaft were Messrs Jim Parsons, Mark Parsons, A. Plummer and H Ashman.

The coal worked at that time was all on one shift, the day shift, and one Christmas 'Bull Week' in the 1920s a thousand tons were raised, The pit top men for this grand achievement were rewarded with a bottle of whisky, but they had to wait some time for it: grand promisers, we Colliery Managers. The 1926 strike combined with the fact that the workings were getting extensive and farther away from the shaft. Perhaps the underground system of haulage was expensive

and required modernisation. When Sir Frank Beauchamp took over the Colliery in 1925 he installed an electric hauler underground and additional boilers in the surface. This equipment came from Farrington Colliery which Sir Frank had recently closed, but it was insufficient to prolong the life of the colliery and on November 11th 1929 Clandown Colliery closed.

Acknowledgements

Most of this article is reconstructed from an old photograph of the pithead and hearsay about the shaft itself, together with some notes left by Mr Arthur Stevens, late under-manager of Braysdown Colliery who, in the 1926 strike, worked in the Clandown shaft. More information has been acquired for me by Mr W H Curtis of Clandown who worked at Clandown Colliery from 1908. He also made contact with Mr J Fear who was the Deputy at Clandown Colliery, where he started work as a lad in 1900 when twelve years old. The passbye was being constructed at the time. At 88 years of age he retains all of his faculties and is hail and hearty. He was one of the original members of the Colliery rescue team, well respected by men and management. Mr Curtis also contacted the shaftmen's assistant, who worked on the maintenance of the shaft during the 1920s, a Mr E Mason. He has given useful information which was a great help in drawing the diagrams of the passbye showing the guides approaching a departing from the actual passing place of the cages.