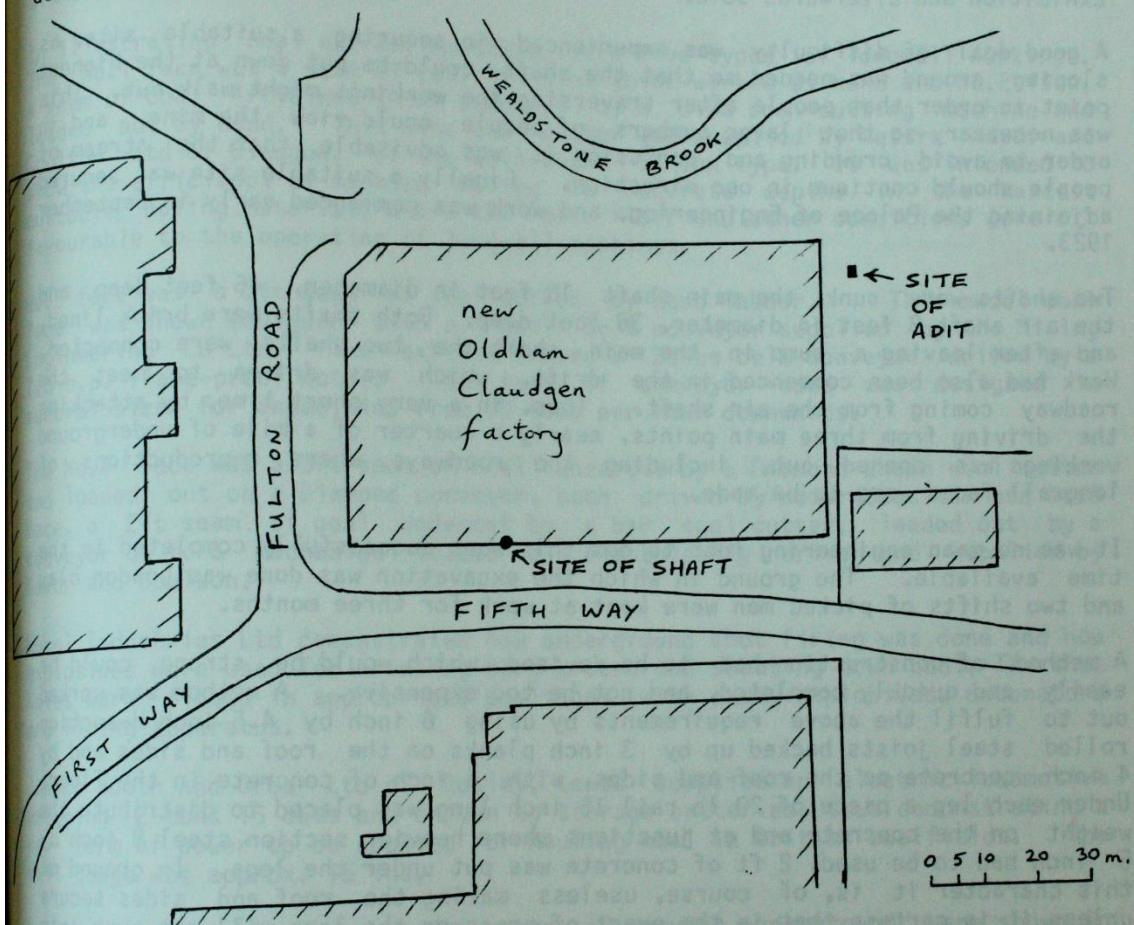


THE WEMBLEY COAL MINE

(Geoffrey Hewlett)

The demolition of the Palace of Engineering at Wembley Park in 1979 led not only to the construction of new warehouse and cash and carry units but also improvements to the road network on the Wembley Trading Estate, with First Way being extended into Fulton Road. Access within the estate was more recently improved by the extension of Fifth Way from Fourth Way over what had been the Wembley Stadium Station British Rail loop line to First Way and Fulton Road (see maps). This involved the demolition of the premises of SGB, the scaffolding firm. In 1985 these were coupled with the site of Kyle Stewart's to the north to provide a new factory development for Oldham Claudgen as well as land for the new Fifth Way link road. The concrete site slab of the former buildings on the site had been exposed for some time but it was during site clearance works in August 1985 when the land was being prepared for the Oldham Claudgen building and new roadway that the contractors dramatically exposed a brick lined shaft, 18 feet wide, on the southern side of the site and unearthened concrete supports to an adit about 280 feet away in the north west corner. This was near to where sections of the Never Stop Railway had been demolished a month previously.



From the base of the shaft, once the black oily water and sludge had been pumped out, a 6'6" high gallery or passage, 8'6" wide, could be seen leading eastwards. The workmen had accidentally found the Wembley Coal Mine. The dangerous shaft was filled and the new factory building now stands on its lip with no outward sign to the visitor of the extraordinary undertakings carried out on this site some sixty years before.

In several site photographs of the British Empire Exhibition of 1924-25 the pit headgear of the coal mine can be made out but the layout of the mine above and below ground has been neglected in recent research work and it is hoped this article will remedy this imbalance.

The British Empire Exhibition at Wembley contained as one of its most attractive features a model coalmine equipped with plant, representative of the best British mining practice. The Director of the Mining Exhibit in 1924, Mr H M Crankshaw, described the construction of the exhibit in *Colliery Guardian* as follows :-

"Few people beyond those actually engaged in the industry know what a colliery is like. Therefore, when the British Empire Exhibition was started, the Mining Association of Great Britain decided, in conjunction with the Miners' Federation and the Institution of Mining Engineers, to construct at Wembley what would be as near as possible to a full-sized representation of an actual working colliery. Elaborate plans were made and the co-operation of machinery manufacturers secured, so that plant could be lent for the period of the Exhibition and afterwards sold.

A good deal of difficulty was experienced in securing a suitable site, as sloping ground was needed so that the shaft could be put down at the highest point in order that people after traversing the workings might walk out. This was necessary so that large numbers of people could view the mine, and in order to avoid crowding and confusion it was advisable that the stream of people should continue in one direction. Finally a suitable site was secured adjoining the Palace of Engineering, and work was commenced early in September 1923.

Two shafts were sunk, the main shaft 18 feet in diameter, 45 feet deep, and the air shaft 8 feet in diameter, 36 feet deep. Both shafts were brick lined, and after leaving a sump in the main shaft the two shafts were connected. Work had also been commenced in the drift, which was driven to meet the roadway coming from the air shaft. Thus, in a very short time, by attacking the driving from three main points, nearly a quarter of a mile of underground workings was opened out, including the roadways where reproductions of longwall faces were to be made.

It was no mean engineering feat to get this work successfully completed in the time available. The ground in which the excavation was done was London clay and two shifts of picked men were kept at work for three months.

A method of construction had to be devised which would be strong, could be easily and quickly completed, and not be too expensive. A method was worked out to fulfil the above requirements by using 6 inch by 4.5 inch H-section rolled steel joists backed up by 3 inch planks on the roof and sides and by 4 inch concrete on the roof and sides, with 6 inch of concrete in the floor. Under each leg a piece of 20 lb rail 15 inch long was placed to distribute the weight on the concrete and at junctions where heavier section steel 8 inch by 5 inch had to be used, 2 ft of concrete was put under the legs. In ground of this character it is, of course, useless making the roof and sides secure unless it is certain that in the event of pressure the legs will not push into the floor. This method of construction was found to be very satisfactory and increases in strength with age as the concrete matures and hardens.

When finished camouflage of one type and another is used where necessary, so that the pit-like appearance shall not be lost.

When the main roadways were connected the next step was to construct an underground office, two pump rooms, two rooms for hauling engines and eight other openings, so that various mining operations could be properly demonstrated.

Arrangements had been made to supply coal from collieries which would be taken underground and put in position as at an actual working colliery, so as to give the public as realistic an impression as possible. In addition to making pack walls of bind were sent up from the collieries and used for look like colliery workings; therefore, the underground workings not only look like colliery workings, but being made from material sent from collieries, they actually are colliery underground workings.

At the bottom of the main shaft there will be the usual underground manager's office."

Of the machinery on display there were pumping plant, haulage engines and coal cutting equipment at a number of faces. For example, there were two pumps on Co. and the other, a six stage turbine pump made by Pearn and 10ft 4ins long and 4 ft 2ins high x 4ft 2ins wide. There were also two types of haulage engine one, a 25 h.p. electric hauler by M.B. Wild and the other an endless rope electric hauling engine by Messrs Markham. These were equipped with ropes from Bruntons of Musselburgh and pulleys of not less than 2ft diameter.

In illustrating coal extraction there were five types of longwall workings. The No.1 face was a seam of coal 4ft 6ins thick worked by hand and No.2 face, a seam of coal 4ft 6ins thick undercut by a disc coal-cutting machine and loaded out by hand. This disc coal-cutter was supplied by Messrs Mavor and Coulson Ltd of Glasgow, of the well-known Samson type. It was intended to show the efficiency of machine holing to moderate depths in the hardest cuttable holing materials where the roof, floor and other conditions were all favourable to the operating of longwall machines.

No.3 face was a 3ft seam of coal worked by hand labour. This model coal face was shown equipped with a "Meco" belt conveyor supplied by the Mining Engineering Co Ltd. The exhibit showed a 20ins belt conveyor driven by a 7.5 h.p. flame-proof motor. The type of conveyor used was designed in several sizes for capacities from 70 tons per hour downwards.

The No.4 face was a 3ft seam of coal undercut by a Diamond chain coal cutter and loaded out on a Diamond conveyor, both driven by compressed air and No.5 face, a 2ft seam of coal undercut by a bar coal cutter, loaded out by a conveyor on to a mechanical loader all electrically driven and supplied by Mavor and Coulson.

Nobel Industries Ltd demonstrated how underground shot firing was done and how explosives were used for breaking hard ground and shooting down coal. The shot holes were fitted in appropriate positions with dummy explosives, detonators and firing apparatus.

Joseph Booth and Bros Ltd of Rosley, Leeds supplied an electric locomotive weighing 2 tons 15 cwts and driven by storage batteries, thus demonstrating a new form of power to be applied for hauling coal in British coalfields. The rail gauge was approx. 15 ins.

Live ponies which had seen many years of service underground were shown in their stables and there was also an example of pony haulage.

On the longwall faces, figures of miners, each performing the work he would do in a mine, gave an excellent idea of how the work was actually carried out.

Messrs Matthias Spencer & Sons of Sheffield supplied all the miners' tools and Messrs Hadfields Ltd the pit tubs.

On leaving the mine visitors passed into an Exhibition Hall.

On the surface all buildings were of fireproof construction, brick walls, steel roof trusses and trafford tile roofs. The winding engine houses, 18 ft to the eaves, had a travelling crane supplied by Herbert Morris & Co. All the other buildings were 10 ft to the eaves, and all windows had steel frames.

The winding equipment consisted of a 500 h.p. 3,300 volt, three-phase, 50-cycle induction motor connected to winding drum of 10 ft diameter, equipped with post brakes operated by compressed air and having a tachograph to register the winds. The mechanical parts of the winder were supplied by Markham and Co Ltd, Chesterfield, and the electrical equipment, including the entire control apparatus, etc. by the British Thomson-Houston Co Ltd, Rugby. The motor ran at a maximum speed of 470 r.p.m. in either direction. To effect the rapid acceleration, deceleration and reversal necessary, several special features were incorporated in the control gear.

The air brake contractor gear of unique design was covered by B.T.H. Patents.

As protection against over-winding, limit switches were fitted in the shaft headgear, the arrangements being such that after an overwind it was impossible for the driver to start up the motor so as to pull the overwound cage further into the headgear. Red and green indicating lamps were mounted on the driver's instrument pedestal. The red lamp lit up should the driver start the winder in the wrong direction at the commencement of a trip while the green lamp lit all the time the 3,300 volt supply was connected through to the reversing contractors.

Steel lattice headgear, 30 ft high, was erected over the tip of the shaft with pulleys 15 ft in diameter. The headgear was designed and made by Norton-Harty Engineering Co. Actual colliery cages were used to lower people down the shaft. For this purpose, Messrs Latch and Batchelor Ltd, of Birmingham, provided both winding ropes at the colliery. One of these was a locked coil rope. The second rope a flattened strand rope. Both these ropes were made from special rust-resisting wire.

A comment in the Colliery Guardian noted "These types of rope have practically displaced ordinary round stranded ropes at big collieries, etc., owing to the many advantages they possess; in fact, in many cases where shafts are deep and the duty heavy, it would be impossible to use ordinary ropes as, being more compact, they give a higher breaking strain, have a far superior wearing surface and do not stretch or twist like ordinary ropes."

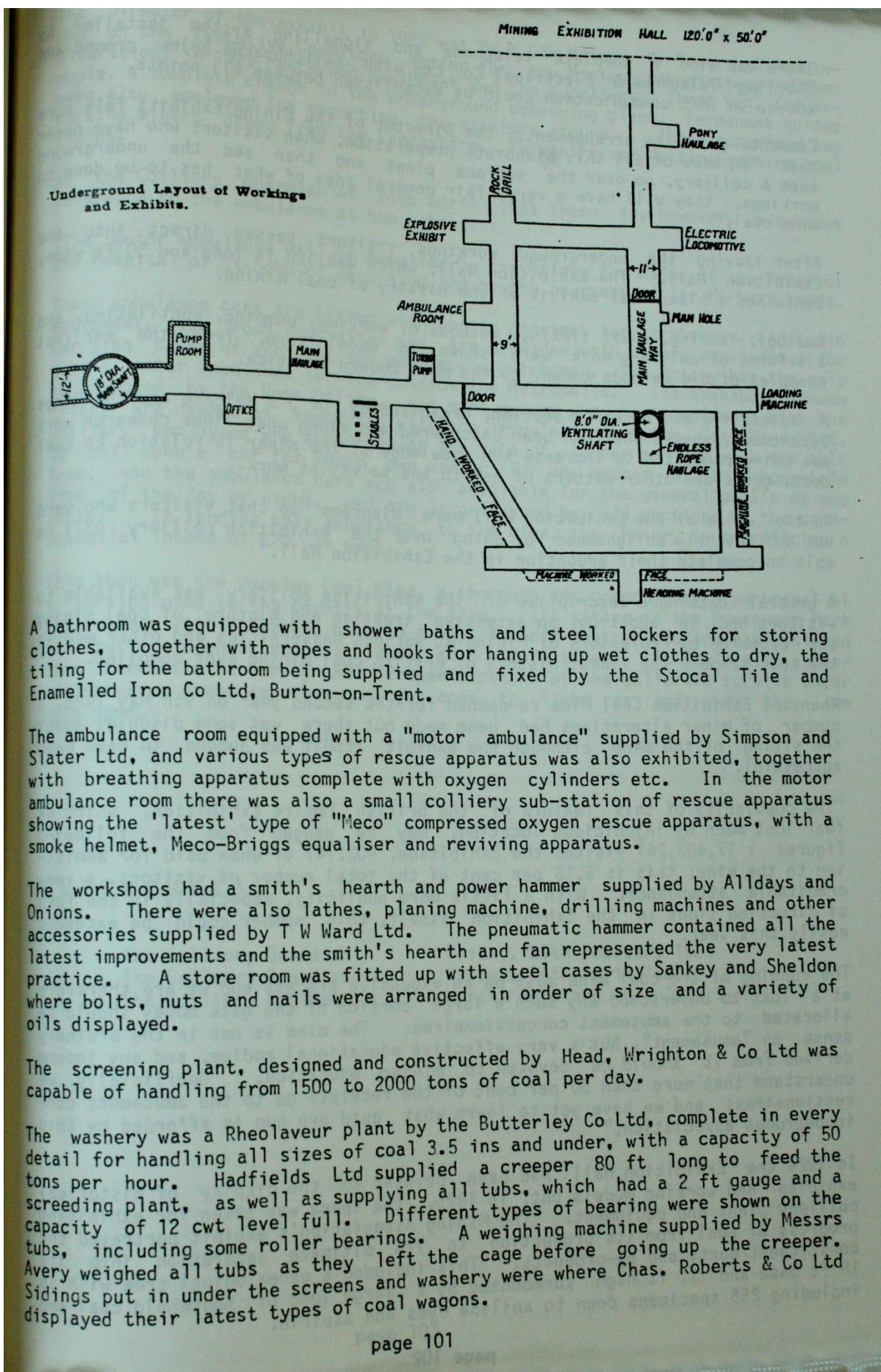
Power-operated gates were installed by the Westinghouse Brake and Saxby Signal Co Ltd and were made to open automatically on the arrival of the cage at the pit top, closing immediately the cage commenced to descend. The gates were substantially constructed of wrought-iron and were of folding type.

The gates to the cages were operated by compressed air which was admitted to pneumatic cylinders through electro-pneumatically controlled auxiliary valves.

Reaching the lamproom and offices visitors would have found the lamproom fitted throughout with "Ceag" miners' electric safety lamps and shown as near as possible to working conditions with its charging stands and hanging racks for 200 lamps.

In the other corner of the lamp room was a cleaning machine and the running table used for conveying the cells and lamps from the benches to the charging stand and hanging rack.

An official's office, completely equipped with all report books and all colliery office requisites, was built, and the usual barometer and thermometer hung outside, together with the notices etc required by law.



The washery was a Rheolaveur plant by the Butterley Co Ltd, complete in every detail for handling all sizes of coal 3.5 ins and under, with a capacity of 50 tons per hour. Hadfields Ltd supplied a creeper 80 ft long to feed the screeding plant, as well as supplying all tubs, which had a 2 ft gauge and a capacity of 12 cwt level full. Different types of bearing were shown on the tubs, including some roller bearings. A weighing machine supplied by Messrs Avery weighed all tubs as they left the cage before going up the creeper. Sidings put in under the screens and washery were where Chas. Roberts & Co Ltd displayed their latest types of coal wagons.

There was also a complete telephone and signalling system installed by Sterling Telephone & Electrical Co Ltd with switchboards below ground and above, so that communication could be established between all points.

Commenting on the arrangements, the Director of the Mining Exhibits felt sure that "In view of all this elaborate preparation, when visitors who have never seen a colliery, go over the surface plant and then see the underground workings, they will have a very fair general idea of what has to be done to mine coal."

After leaving the underground workings visitors passed direct into the Exhibition Hall. The Exhibition Hall, which was 120 ft long and 50 ft wide, contained a historical exhibit of the history of coal mining.

Geology, boring, shaft sinking, methods of working, pumping, ventilating, and all forms of colliery work were shown in model form, from the earliest examples of old methods known, to the most modern practice.

A scientific and research section, organised by Dr J S Haldane and the Mines Department, showed what had been discovered and along what lines research work was being conducted to increase the knowledge of the miner in relation to coal dust, gases and other matters of health and safety at work.

On the walls of the Exhibition Hall were diagrams "so that visitors who were not sufficiently enlightened by going over the exhibition colliery will be able to complete their education in the Exhibition Hall."

A general catalogue descriptive of the exhibition colliery was available to visitors and, in addition, an extensive treatise and history of coal mining was prepared by Professors of Mining at various Universities and other men in the coal trade - the finest history of British coal mining ever compiled!

When the Exhibition Coal Mine re-opened for the second year on 9th May 1925, a number of minor alterations had been made but there was some disquiet about the siting of the mine although the exhibit itself was judged to have been successful.

"The popularity of this feature of the British Empire Exhibition, which we fear lost much by injudicious location, may be gauged from the following figures : 17,403,267 visited the Exhibition, 902,747 of whom paid for admission to the mine; this is 5.18 per cent of the total number of visitors, a very creditable attendance. With a little more publicity, especially in the form of direction signs in the Exhibition itself, this number could be exceeded easily this year.

The running of the coal mine must be an expensive process and we are therefore at a loss to understand why such a large portion of the gate money should be allocated to the amusement concessionaires. The mine is not in the ordinary sense an "amusement", but a very effective educational medium, and any income derived from it should be devoted to mining education. Unofficially, we understand that more than 50 per cent of the receipts go to the amusement concessionaires, and we have yet to learn what quid pro quo is afforded by this incongruous association."

In 1924 the Exhibition Hall had been devoted to the display of historical exhibits and working models but, in 1925, the space was taken for exhibiting colliery plant and equipment. The Mining Association's exhibit portrayed the progress of coal from its production to its ultimate separation into its constituent parts and by-products. This included a genealogical tree with an 18 ft base and 12 ft high surmounted by a large lump of household coal and including 255 specimens down to aniline dyes and aspirin.

The Director of the exhibit in 1925 was Mr W Law Halpin, Mr Crankshaw remaining on the Executive Committee acting for the Mining Association. Other alterations in 1925 concerned equipment and the suppliers. There was, for example, a complete change in the underground conveying plant. Permanent guides were also employed for escorting the visitors around. These comprised ten working miners drawn from the Lancashire, Yorkshire and Nottinghamshire coal fields.

In the *Colliery Guardian* of 24th April 1925 there is, however, a curious reference to the ambulance at the exhibit :

"The motor ambulance will be supplied by the Priory for Wales of the Order of the Hospital of St John of Jerusalem and by the courtesy of Sir Herbert Lewis.

These ambulance cars are fitted with spring carriers for stretchers, first aid equipment, sick room requisites and are provided with every convenience for carrying cases of accident and most acute sickness. The Priory has the only public motor ambulance service outside the Metropolis. Its transport scheme is approved by the Home Office, and mine owners who have contracts with the Priory are deemed as complying with the regulations of the Coal Mines Act. Colliery employees who subscribe at the rate of 1d per man per week are able to call upon a car for their own use or for any member of their household free, and the ambulance cars are also available for the general public at any time of the day or night, and are largely used by all sections of the community. In lending this ambulance to the mine, the Priory is sacrificing a potential income of £20 per week."

This then was the Wembley Coal Mine, a thorough and comprehensive portrayal of a working mine in the country at the time. Its siting in the Amusement Park may seem a little strange but, in a way, its off-centre location has assisted its survival, underground at least, into modern times. It would also appear from current site survey that further sections of the galleries survive under neighbouring sites and these may yet come to light as and when they are developed.

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