

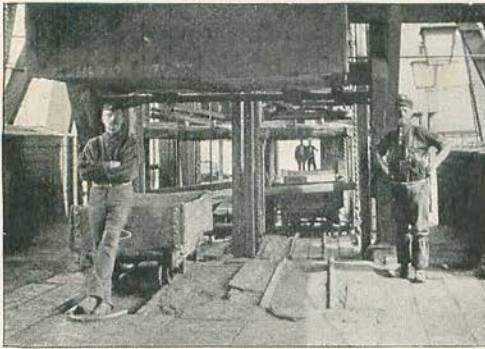
LIFE IN A COAL MINE.

By JOHN FOSTER FRASER.

Illustrated from special Photographs by H. L. MOREL, Nottingham.



IN the public mind a halo of romance surrounds the head of the coal-miner. There is something that is fascinating about the life of men who daily descend into the blackness of a pit and hew the coal which cheers us by its bright brisk flame on a cold winter evening. When they go down to their work no one knows whether they will ever come back again. They are surrounded by dangers. There may be an explosion, or a sudden



AT THE MOUTH OF THE MINE.

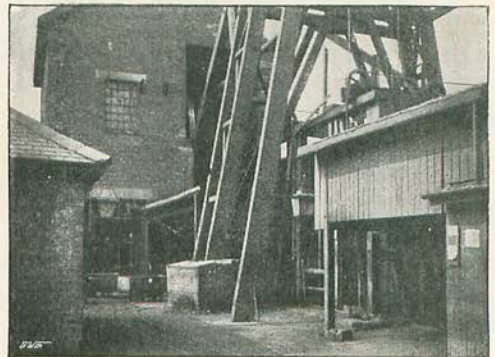
rush of water, or the falling in of a roof. A mine is very much like a ship. In the case of disaster there is no back door by which escape can be made. The men are caught in a hole and death comes to them in shapes that make one shudder.

This is why there is always a warm corner in the public heart for the miner. He, himself, grown familiar with the daily workings of a pit, sees little of the romance. With him, indeed, it is a mere case of earning bread for his family, and although he is quite aware of the hourly risks, he shuts out the contemplation of them and thinks only of his work.

And although the miner is, speaking generally, a rough, uncivilised, and uncouth being, underneath his rude jacket there is sterling valour, which all the world knows has many a time been shown when a brother

is in danger. I know a good deal about the miner and his life. I have seen him at work, toiling hour after hour in the deep recesses of a mine; I have seen him risking his life to save that of others; and I shall never forget how, during the great coal dispute in 1893, when I made a tour of the colliery districts of England, the men held stubbornly, and with pale starvation staring them in the face, to the cause in which they believed.

I know there is another picture to be drawn of the miner and his life. There are exceptions, but, as a rule, the miner is improvident. He earns good wages, and while he is content to live in miserable jerry-built cottages he squanders his money in betting and even worse pleasures. He is a great dog-fancier, and pigeon-flying is a favourite pastime. He patronises the public-house in preference to the local reading-room, and thinks he knows a good deal about horses. It is not my province to make any apology for this side of the collier's life, but I have often thought when I have heard folks abusing the collier for his improvidence, his ignorance, and his degrading pastimes, that after a man has been down in the darkness of a pit for eight or ten hours, breathing obnoxious gases and lying in uncomfortable postures working at the coal face, when all the energy, physical and mental, has been drained out of him by toil, it is no wonder



AT THE TOP OF A SHAFT.

that at the close of the day he prefers the jovial rowdy companionship of his mates to the study of political economy, the moral of history or the differential calculi. The miner has a good deal of humanity about him, and that is a fact there is often an inclination to overlook.

And his work—what of that? I have been down coal mines 1000 feet below the surface, mines into which there is running a constant stream of water and where the seam of coal is only three or four feet thick; I have crawled for a couple of miles along this seam till my back has ached, and when I have come to an open space I could hardly straighten myself up; I have tramped slush, slush through the mire, and been choked with the fumes; I have watched the men, stripped naked to the waist, hewing at the coal while the lamps have flickered faintly upon their dust and perspiration-streaked chests, until, when I came to the surface, I have murmured a thankful prayer that my occupation was not that of a collier.

Mines vary as much as people, and I will in this article describe a day I spent in one of the best mines in England, where the seams of coal are fairly thick, where all the modern machinery is in use, and which, indeed, may be taken as an example of a first-class colliery. But first of all let me make a few generalities so that a better idea may be obtained of the working of a mine. Every schoolboy knows that it is by geological investigation we learn whether there is coal under certain ground. The layers of rocks are always according to rule, and when a bore hole is made into the earth it is known on striking a certain rock that there is some sort of coal underneath it, or in striking another rock it is known there is no use boring further because coal is never found beneath it. Sometimes the bed or vein of coal is thick and worth winning; sometimes it is thin and not worth the trouble, and sometimes, owing to volcanic disturbances, it lies very unevenly, and then it is a question whether it will repay the working.

Coal, I may be allowed to explain for the benefit of those readers who have not studied

the matter, contains carbon, hydrogen, oxygen, and nitrogen. All this is, of course, the remains of forests buried hundreds of thousands of years ago. It not unfrequently happens that in one mine there are two seams of coal. One seam will be struck 300 feet below the surface, and another perhaps 600 feet below. It is only the geologist who can talk airily about the space of time which elapsed between the two deposits. But there is one interesting thing which scientists have pointed out, namely, that the coal-fields are all near the mouths of rivers, or on what was swampy ground in the bygone ages. This explains how they came in the course of time to be submerged. The forests must have been very dense. The thickness of a seam of coal as it is now found gives but



AT THE BOTTOM OF THE MINE.

little idea of the density, for a great authority has computed that the transformation of wood into coal is attended with a loss of about seventy-five per cent. in weight. Plants which have gone towards the making of coal vary considerably, and I remember reading somewhere of beds of coal made entirely of spores of ferns. Very often in clay immediately under a vein of coal are found roots of plants. As I have mentioned, the coal seams vary in thickness. In Great Britain the thickness is from an inch or so up to forty feet, although from three to seven feet is the usual thickness. In France and in India coal 200 feet in thickness has been discovered. I make no excuse for quoting from the report of a Royal Commission the fact that the quantity of work-

able coal in these islands is 146,454,240,387 tons, and that the unavailable coal amounts to 48,465,141,122. How the Commissions got so exact in their figures I do not know. Anyway, one learns from them that of the coal in Great Britain more than three-quarters of it is available for consumption, or about 750 times the amount of the present annual output of 180 million tons.

The mine I recently descended was the Cinderhill colliery belonging to the Babbing-ton Coal Company, and is situated in a lovely part of Nottinghamshire and not many miles from the centre of the lace industry. Collieries always disfigure the landscape, and so long as we must have coal there is no help for it. As I walked the green lanes I could tell where the colliery was by the shaft which stuck over the trees, and by the dun smoke which hung in the breathless air. On the colliery ground were strings of railway trucks laden with coal ready to be trained off to different parts of the country. There was the whirl of the two great wheels over the pit mouth, one lowering empty cages while the other brought up cages with tubs or corves filled with coal. There were few men about, except those engaged in removing the filled tubs and putting back empty ones. The cage is made of open iron bars, with a metal plate over the top to protect anyone inside from pieces of falling coal. It is raised and lowered by means of a steel rope which runs on a massive reel in the engine-house. There is a little hut close to the pit mouth from which a man can watch the unloading. As soon as the empty corves are ready to send down he signals to the engine-house. A man in the engine-house pulls a lever and away the cage goes. The engine-man can tell by certain marks on the rope when the cages approach the bottom or top, and so he slows gently.

I was provided with a safety-lamp, and then in company with Mr. Walford Hunt, the assistant manager, I prepared to descend the pit. For a couple of minutes I stood on the platform, which was covered with cast-iron plates, and watched the unloading of the tubs. Working amongst coal is hardly a clean occupation, and the men with their sleeves rolled up and their throats bare were covered with grime. As the empty tubs came running on the platform they were pushed into the cage while the full tubs were being pulled out at the other side. We got in the cage, gripped tight the iron bar overhead, and in another moment we were swishing down into the darkness. Going down a pit

produces a strange sensation. You give a gasp for breath as the cage sinks down with you to the black lower regions. The air, full of coal-dust and gas-fumes, roars past you. The sudden change from light to darkness is so startling that the lamp you carry accentuates rather than relieves the gloom. You shut your eyes, hold on like grim death, wonder at the strange upheaving feeling in the region of the stomach, and then it flashes upon you that there is certain to be an explosion or something dreadful, and you are not quite sure that you were wise in risking your precious life, and feel it might have been better to have remained on the surface.

One singular thing everybody notices on going down the mine is the absolute certainty that you are rising instead of descending. At first you are startled by the fall, and then when you begin to collect your thoughts you realise you are going up. This idea clings to you, although you know perfectly well you are going down, and you are not able to get rid of it till the cage stops; you step out into a dim-lit tunnel and learn you are at the mine bottom, 660 feet from the surface.

I found it necessary to sit down for a minute or two to accustom my eyes to the gloom. Tub laden with coal were being drawn towards the pit bottom by an endless wire rope running round the various workings, the empty tubs being sent over the rails on the return journey of the rope. There was the thumping of the tubs as they knocked together and the shouting of the men to one another as they filled the cages and signalled by means of an electric wire to the surface; there were dull eerie echoes and strange shadows dancing on the white-washed roof, but above it all the impression which laid hold of me was one of loneliness. Although there was noise and clatter, and I was in close conversation with Mr. Hunt, I felt that the noise was unnatural, that there was a dead silence, that we were cut off from the great busy world above, and then this impression changed to thoughts of wonder at the marvellous inventions man had found out, not the least wonderful of which was the winning of dead forests, buried in ages that are forgotten, for the benefit of man to-day.

There are different methods in different parts of the country for working the coal. At the Cinderhill colliery the long-wall system is in vogue. This is the best plan for thin coal that has a roof of good hard rock. The way for instance in Lancashire

is to make a road through the coal to the end of the working and then claim the coal backwards towards the pit bottom. Thus as the



AN UNDERGROUND STABLE

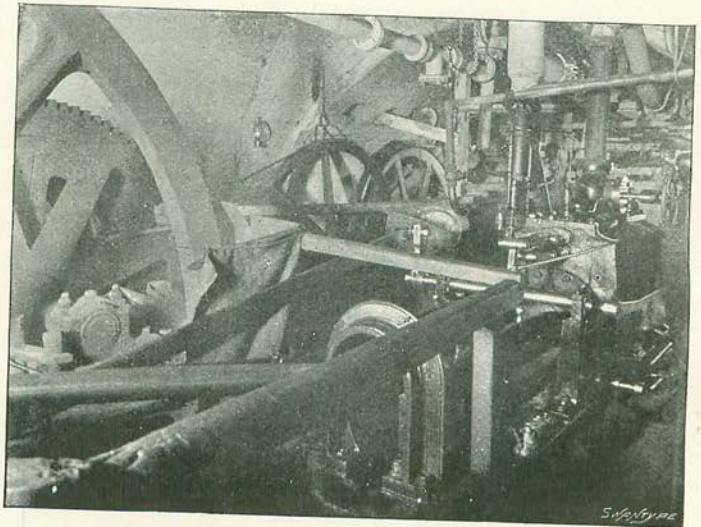
coal is taken away the ground slowly subsides. But by the long-wall system all the coal is removed as the working is advanced. It is like working at the face of the wall, clearing everything before you. Following this method necessitates the maintenance of roads. The roof has to be held up by beams or brick. Still, it is generally considered to be the best way, although it cannot always be followed. Less coal is left than by the other system. Still, speaking generally, from ten to fifteen per cent. of coal is lost in the working.

As soon as my eyes were accustomed to the gloom, we got into one of the empty tubs. There were a number of them fastened together, and a lanky lad sitting on the front of the endless rope with a pair of tongs, and then we were rattled through the tunnel, lit at long distances by stray lamps. These tubs are not comfortable things to ride in. Their use is to carry coals, not humanity; indeed there are very strict rules against any of the workmen riding in

them. The constant jolting and shaking over the uneven metals soon began to make one feel sore. By the light of the safety-lamp I carried I could see the roof of rock about three inches over my head, while at the sides it was quite easy to discern the seam of coal and where it joined the rock. There were two seams of coal in this mine. The qualities varied considerably, and what is known as top hard—for steam purposes and the making of gas—which lay 660 feet from the surface at an inclination of one in sixteen was four feet six inches in thickness. The deep soft coal for household purposes was 1140 feet below the surface and was three feet thick.

The workings underground extend many miles, and after we had travelled a long distance through the tunnel I got off the tub to inspect the machinery and the stables. First I went to the stables where the ponies were kept. Once a pony is taken down a mine it is never taken up again; ponies remain underground for as long as twenty years without ever seeing daylight. They seem to thrive well enough, except that their eyesight is injured and in time they become totally blind.

Cut out of the rock overhead was an engine-room. It was a strange thing to find an engine panting hundreds of feet underground, but here were engines working a rope a mile and a half long, used for bringing the filled tubs from various parts of distant workings. It was intolerably hot; five minutes I found quite long enough to stay in the room. Here, long hour after hour, a



MACHINERY A THOUSAND FEET BELOW GROUND.

couple of men sit attending to the engines and working the levers. Their lot, like that of Gilbert's policeman, is not a happy one, but I was interested to find that they tried to make their surroundings bright, for one of them, with an artistic turn, had painted, and painted rather well, a number of decorations on the engines. There is nothing for them to hear but the throb of the monsters, and nothing for them to do in working hours but attend to them and watch the indicator to know when the rope has run its length. But, yes, there is something else for them to hear! There is a telephone by means of which they can not only communicate with the surface, but with Bullwellfit, which is some miles away. Government inspectors do not care for underground engines—they think they tempt accidents; but down dry mines like the Cinderhill, and where there is little gas, any danger is reduced to a minimum. A naked light can be carried without any fear. The regulations under the Mines Act are very strict, as they should be, and every precaution is insisted upon to avoid accidents. The visits of the Government inspectors are always surprise visits. They just enter a colliery, and without any warning enter the cage and go down and make a tour of inspection. Besides a manager and under-manager each colliery has day and night deputies, men whose duty it is to be constantly walking round the colliery inspecting the roof, marking with chalk places that need bolstering up, seeing that the ways are clear and all obstructions removed. Once a month a representative of the men is allowed to

inspect the mine to find out that everything is safe and that the employers do all that the Act requires them for the safety of life. But the representatives of the employers have to



AN UNDERGROUND SMITHY.

keep a strict eye on the men that they too do all that is requisite. The men are paid according to the amount of coal they win, and of course careless men often neglect to properly fasten up shelves of coal under which they are working. By this they endanger their lives. A man can be summoned for this, but police-court proceedings are only taken in extreme cases. There is a voluntary system of fines for breach of the regulations, and all the money obtained this way goes into an accident fund.

While walking along the tunnel I found the air at places rather oppressive, while at others there was a vigorous draught. The ventilation is a very important thing in the conduct of a mine, not only to provide air for the men and boys working, but also to remove the inflammable gases. Every mine has two shafts; this has been required by Act of Parliament ever since an accident, when, many years ago, some machinery fell into a pit and blocked it up, so that the men in the mine were starved to death. By means of a huge fan air is driven down one shaft, and by an inclined drift it is led to the other shaft where it escapes. At various places in the mine there are doors to send the current round and through some workings at a distance. So when roads are being made it is usual to have them in pairs for the air to journey up



AT THE FACE OF THE COAL.

one and down the other. One may grasp some conception of the size of the Cinderhill colliery when I say that 100,000 cubic feet of air is escaping up the shaft every minute.

Getting further into the mine and where there were no lamps the stillness was awful. It was as quiet as a chamber of death. It was pitch dark, save for the glimmer of the lamps we carried. Not a sound disturbed the silence except our steady tread. Presently far ahead and apparently no larger than a pin-head I discerned a light. It grew larger and presently came a far-off rumbling. It was the approach of a train of tubs filled with coal. The youth in front, with his lamp swung before him, gave a shout of warning and we stepped into one of the crevices in the wall, specially made for men to shelter in, while a train rumbled along the narrow way. Past us and away into the mirk went the tubs until silence again reigned and we trudged along once more.

At many places were beams at the side of the roadway with a cross piece on the top to help in holding up the roof. At points the roof had pressed down and cracked the beam. Where the crack was large and the beam threatened to break the deputy had marked with a cross that morning on his rounds, so



DRILLING THE ROOF OF THE COAL.

that when night came the men who were engaged in looking after repairs would see it and put up a new beam. Most of the repairs are done at night when the miners are out of



EXCAVATING COAL.

the pit and there are no loads of coal to be brought along.

I had ample opportunity as I walked, sometimes with plenty of room to stand straight up in and sometimes having to crouch while wending my way, to inspect the seam of coal through which our path lay and to discuss the probable extent of the bed. Geologists consider it the same that is known in Yorkshire as the Barnsley bed, and is the main coal obtained in Leicestershire and Derbyshire.

At the mouth of cuttings there was frequently put up a screen and a board bearing the word "Fire." These were old workings fenced off, and as they were no longer inspected nobody was allowed along them because there was the possibility of gas having accumulated. Once or twice loads of coal came along in the rickety noisy tubs, and every time we had to seek shelter in one of the numerous man-holes at the side, and which are easily distinguished because they are whitewashed. At a bend in the road the seam heaved upwards. This had been caused by a volcanic eruption which had given a terrific wrench to the coal, so terrific indeed that it ran out on the surface a mile and a half from where we then were.

At length we got to the workings. Here there were no regular tram-lines and endless rope. All was confusion. Men were hurry-

ing about and jumping over rough heaps of coal. It so happened that at this particular point there was a "fault" in the seam, which suddenly dropped three feet six inches, and great difficulty was met with in getting to it. The men were working in a hole. There was not room to stand up in and one had positively to crawl over the coal which had been thrown on one side. Beams had hastily been fastened to prop up the roof. Naked to the waist, men were crouching under a great shelf of coal, swinging their picks to remove the rock beneath it. There was not above eighteen inches for them to move in, and there they lay, strange figures indeed, with begrimed features, slowly and laboriously hewing their way while other men with shovels cleared the débris. I sat down, swinging my lamp between my knees, to watch this strange sight. Hundreds of feet above were beautiful meadows, and here, far under the rocks and about two miles from the pit bottom, were these men

rock and the coal. Thud, thud sounded the picks, and swish, swish sounded the shovels. There were hoarse instructions and hoarse



BRINGING ALONG THE EMPTY TUBS.

answers, sounding strange as they broke the heavy silence. Big pieces of coal were pitched into the tubs and then pushed on to a temporary line where their own weight carried them down through the workings to the level, to be afterwards drawn by one of the ropes to the pit bottom.

It was downright hard work cutting through the rocks and following the dip of the coal. Fault coal is generally unsaleable, and therefore hours are spent in getting to what is worth bringing to the surface. The upheaval thousands of years before had generated heat so that the coal at the fault was almost charred to a cinder. At another place the coal was practically worthless through great pieces of calspar being in it. It is easy to see where the chemical-laden water had trickled through the decomposing wood, how it had hardened like a stalactite and there remained to this day.

I spent a long time seeing the men winning the coal. After a way had been cleared under the seam the props which held it up were withdrawn, and sometimes the piece would fall in huge blocks; but more often the coal remained fixed. Then it was necessary to drill a hole far in at

the top of the seam, stick a charge of gunpowder down it, and then fire it. This always dislodged the coal, which fell with a



IN A WORKING.

employed. It was impossible to see distinctly and the light of the lamps only made great uneven and unrecognisable shadows on the

crash, and the roar of the blast rumbled away through the tunnels. I have before mentioned that the men are paid by the

One might enter a cage a fairly passable individual, but on coming out of one the same could hardly be said. Not only are one's clothes covered with dirt, but one's face and hands are like those of a sweep, whilst one suffers a decided inconvenience from the knowledge that grains of coal have worked their way down between the collar and neck.



THE PITCHING BELT.

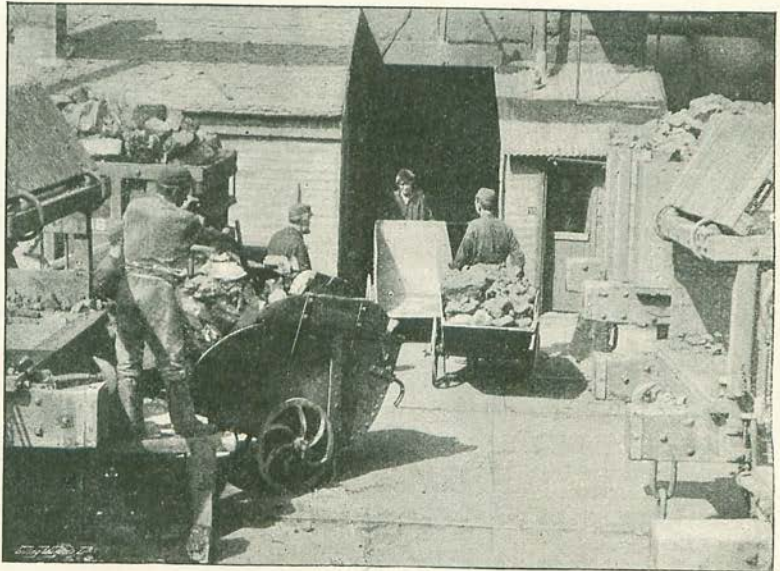
amount of coal they get. The mine owners make a contract with three men to work what is known as a stall at a certain price per ton. These men go shares, but they have to employ other men, perhaps five or six, to do what may be called labouring work, and these are termed day men, receiving their six shillings or so a day each, whether much coal has been won or not. But of course, taking one day with another, it works out all right for the men who contract; they usually make very good wages.

The proportion of coal obtained to the acre varies considerably. I have read that in Cheshire and Lancashire 1130 tons of saleable coal have been obtained from an acre for each foot of thickness in the seam. It has been calculated that the average annual output per man in England is 315 tons.

It was a long and tiresome tramp back to the pit bottom. Once more we stepped into the cage, and then, as though being dragged through a gale of wind, we shot upwards. After

being many hours in the gloom of a mine coming into daylight dazzled one's eyes. Then there was one's personal appearance!

Several things were yet to be done before the coal was piled into the railway trucks. The tubs were pushed along a gradient and pitched down a great screen on to what is called a pitching belt. This is a slowly moving belt of iron sheets, which, as it works along, carries the coal with it. A number of men stand by the side and behind them are coal-wagons, into which different sorts of coal are pitched. Whilst some men pick out pieces of slate and stone, others pick out certain qualities, and throw the pieces into trucks behind. So by the time the belt has travelled a hundred yards most of the coal has been picked. But an immense quantity of coal still remains, and this is carried to a height by an elevator and then pitched down a slope in which there are different sized holes. Through these the coal falls into the wagons below,



LOADING COALS AND ORE AT THE BOTTOM OF THE ELEVATOR.

and so it is all got rid of. Meanwhile, the tub from which the coal has been emptied runs to the pit mouth again.