

A Y R S H I R E I N D U S T R I E S.

No II.

THE BALLOCHMYLE QUARRIES, MAUCHLINE.

We live in an age that has for its watchword—Progress. He who would succeed in the business concerns of this life must be possessed of an aptitude for the special commercial line he may have adopted, and to this special characteristic must be added the others of perseverance, courage as well as caution, an ability to grasp and carry out details bearing upon his work, experience, courtesy, and the necessary determination to bestow constant and unwavering attention to his business. The honest exercise of these fundamental qualities will in time enable the commercial man not only to deserve, but to command success—although we have it on the authority of Polonius that this is exactly what no mortal man can do. Be that as it may, the men possessed of these qualifications always succeed; they continually extend the boundaries of their operations, their names become a power among their fellow-men, and undoubtedly they exert an influence far beyond the confines of their own immediate locality. In the person of Mr Marcus Bain, the much respected leaseholder of the Ballochmyle Quarries, these essential qualities may be found. He is a gentleman who has learned the truth of the saying that in order to succeed he must

"From rosy morn till dewy eve
Stand in the arena."

But it is not to compliment Mr Bain on his natural abilities that we write to-day (we are well aware of the fact that eulogy is not relished by well-informed minds)—it is to give a description of his extensive and widely known quarries, and some information as to how they are worked.

THEIR HISTORY.

A few words on the history of these quarries may in the first place, prove interesting; so we shall take this as the starting-point and come downwards. Some sixty-six years have rolled past since Mr David Lambie of Catrine—the father of Mr Robert Lambie, the present manager of the Mauchline Gasworks—turned up the first sod. The then owner of the fair lands of Ballochmyle was the late Mr Claud Alexander, who, dying as he did, without issue, was succeeded by his brother, Mr William Alexander of Wellwood. Mr William lived and died a bachelor; so when he went the way of all flesh, the present owner, Major-General Sir Claud Alexander, came into possession; and that he may long continue to enjoy it, and that he may long be spared to be the worthy county gentleman he is, is the heartfelt wish of the whole community among whom he resides.

THE ORIGINAL QUARRY.

At first, and for many years afterwards, the original quarry—long ago filled in and used as agricultural land—was very unpretentious. From it, however, was procured the stone used in the building of Mauchline Parish Church—a place of worship erected three years before the passing of the Reform Bill of '32, and considered by competent authorities to be at that time one of the finest edifices of the kind in the West of Scotland. This old quarry was never worked to a greater depth than 50 feet, and, strange as it may seem now-a-days, the stones had to be carted, by a long winding or zig-zag road, to the surface. After a certain piece had been worked to the extent mentioned above, the "baring" of a new area was simply pitched on to the top of the rock, which, although of excellent quality, could not be worked to a greater depth because of the want of appliances. This, be it remembered, was before the days of the Iron Horse and Stephenson's Bottled Sunbeams, and the demand for the stone was necessarily local. For 40 years Mr David Lambie carried on the business, and in doing so, he, with his sons, walked from and to Catrine every morning and evening. It then passed into the hands of

MR WM. GIBSON, OF AUCHINLECK

the members of whose family were all born and brought up there. At his death his eldest son, Mr James, took up the work, and carried it on most successfully. It is some years since Mr James Gibson died. He was a fine type of a true Scotchman. A straight-forward brusque manner and a good heart characterised his every-day life, while to-day his memory still much revered. At his death the whole responsibility devolved upon the shoulders of his son-in-law,

THE PRESENT LESSEE, MR BAIN.

Previous to his going to Mauchline, Mr Bain had received a capital commercial training, so that when he settled down in the place he brought with him many rare ideas which were soon put into operation, and that with an energy and a despatch which astonished the natives. To begin with, he knew that he had a splendid stone to dispose of—a stone the quality of which he had no reason to be ashamed in any market, and he therefore spared neither time nor trouble in getting it introduced to places where it was not known. And now mark the result. Although, comparatively speaking a young man, he can rest on his oars with the easy assurance that the very name of "Ballochmyle" is a sufficient recommendation in almost any part of the world.

THE PRESENT-DAY QUARRIES,

which are situated on the opposite side of the Glasgow and South-Western line of railway from the spot where the original one was, are something wonderful to look at. On the afternoon of our visit we were shown over them by Mr M'Gregor, manager of the quarries, and Mr Bain's right-hand man, a gentleman who well merits that confidence which is reposed in him. The weather auspices were simply delightful, and this of itself went a long way in making the excursion enjoyable. Mr M'Gregor first of all showed us a geological map of this part of the county, drawn on the scale of an inch to the mile. By the aid of this map we learned there is an irregularly-shaped deposit of Rock—called by geologists the Permian Rock—in this district, extending over an area of something like 16 square miles, and experience has shown, while experiments have proved, that the quality of the "rock" is absolutely the best just at the place where the quarries under notice are at the present time being worked. No one can form any accurate idea as to the depths to which the stone reaches. Up till now it has been worked as far down as nearly 200 feet, and even then there is not the slightest diminution as to the quantity or the quality. At the borders of the area mentioned—taking the quarries as a centre—the deposit crops out into nothing. It might be simply, yet effectively described as being

SHAPED LIKE THE HALF OF AN ORANGE, or at all events "saucer-shaped. Having duly noted these facts, we were then conducted to the spot where the best view of the whole concern can be obtained, and that is from the corner of the boiler seat of the great force pump, about which more anon. Our first impression

was one of wonderment at the immensity of the "hole," its width and depths being to a stranger something bordering upon the awful. The sides of rock, as smooth and as perpendicular as art can make them, afforded no hope of a catch to any luckless wight who might chance to fall over, while the water, of a greenish hue, at the bottom seemed to be sullenly lying in wait, ready to hide from sight whatever might be thrown to it. Turning our eyes in another direction, we saw huge blocks of stone being rapidly raised to the surface by means of powerful steam cranes. Dangling in mid air for a moment, they are then swung right on to the "dressing hill," where the blocks are deposited. The rope is again lowered, only for the purpose of bringing up another block—and thus the work goes on from day to day and from month to month. Looking at the men working away beneath us, they appear to be about the size of boys, while the musical "clink" of the big cast steel "mells" takes an appreciable time to reach the ears after the eyes have seen the blow struck. We next proceeded to

THE BOTTOM OF THE QUARRY

where we watched with interest the methods adopted by the quarrymen in getting out the blocks. The "rock," it must be mentioned, lies in beds varying in thickness from a few inches to considerably over three feet—indeed Mr Ramage, one of the foremen, showed us one which measured almost four feet. Although there is no fixed rule as to the direction in which these beds lie, it is found that they mostly lie from east to west—that is they generally "dip" towards the setting sun. The Rock is worked in sections called "motions," and a "motion" measures about 100 feet square or about 10,000 superficial feet. Each "motion" has a separate foreman, who keeps an eye upon everything that is done upon his division. In quarrying, the first thing that requires to be done, after "baring" the earth from the top of the rock at the surface, is "open shearing," which signifies the picking of a trench round the motion, except where there is already an open face, measuring from 12 to 18 inches wide, and which must be sufficiently deep to reach the bed of rock requiring to be worked. Supposing a block 10 feet in length by 4 feet wide were required,

THIS IS HOW IT WOULD BE PROCURED.

The quarrymen—they work in pairs—would, with their straight-edge, mark off their dimensions, then along these lines they pick into the rock to a depth of several inches, according to the thickness of the rock, what is termed a "wedge grip" or "shear." When this has been done, quite a number of heavy steel wedges, placed about three or four inches apart, are put into this shear, then with the heavy mell already referred to, a worker strikes each of them alternately. By and bye these wedges split the rock right down and push it slightly from its bed. The block is then ready to be "pinched" up high enough to enable a "bool," which is simply a large whinstone, to be slipped underneath its edge, then the "drag chain" is put round it, which in turn is attached to the main rope of the crane, and in another moment the block is making its ascent to the surface. Every quarryman takes a pride in the proper quarrying of his block, in getting it properly "in" the drag chain, and then in getting that chain properly attached to the main chain. Should he be careless in doing any of these things, and the stone thereby get injured or broken, he seems to consider it a reflection upon his ability as a workman—indeed, it is only when he sees the block safely landed on the dressing hill that he considers he has done his work in a tradesman-like fashion. After having spent a pleasant half-hour in watching this part of the work, we made for the top by way of the ladders, and when the journey had been safely accomplished we learned that it was a feat few strangers attempt. After all it was not by any means very dangerous, although we have to confess to a slight beating in the region of the heart as we neared the surface.

THE DERRICK CRANES.

Having got to the soil again we were shown by Mr John Ferguson, who has been employed at the quarries for a quarter of a century, the working of his steam Derrick Crane. It has all the latest improvements for "slewing," which can be done by simply touching one of two levers with the foot. This arrangement is applied to all the steam Derricks, and there are no fewer than six of them in daily operation. Attached to them all is what is called a "safety gland," over and above the two original glands, so that in the event of one or both of these breaking or giving way, the "safety" would still keep everything right and secure. This is one splendid precaution that Mr Bain has taken in his care for the safety of his workmen, and among many others it might be noticed that after many long and frequently very expensive experiments, he is completely discarding the use of main chains for hauling up the blocks, and he now uses wire ropes, which in every respect

are safer and better. Formerly when a chain broke, the flying links formed a source of great danger, but now they notice when a wire rope begins to wear, and, when this is discovered, the worn one is immediately replaced by a new one. Mr Bain was, we believe, the first in Scotland to adopt the wire rope principle in connection with freestone quarries.

THE FORCE PUMP.

The force pump next claimed our attention, and we learned there is no water found until a depth of 110 feet has been reached. The first pump used had two 5-inch plungers, which enabled the workmen to get down about 15 feet below the point mentioned. Here, however, the accumulation of water was too strong for this power, so another and larger one had to be obtained. It had two 9-in. plungers, but 20 ft. farther down, although it was supplemented with another pump, it, too, was powerless to keep the quarry clear of water. A new and powerful bell crank pump, having two 16-inch plungers, was then erected at very great cost. This article can suck up 60,000 gallons of water in an hour, or nearly a million and a half gallons in the day and night. Of course there is no necessity for its doing this, still it is there if it were needed.

WATER SUPPLY.

Close beside this pump can be seen the first one ever used here. It is a small, insignificant-looking article, shaped not unlike the frame of a sewing machine, and it shows a marked contrast to the one at present in use, while it also serves to show what vast progress has been made in this respect. The water for generating the steam used in the many appliances connected with the workings is obtained from the quarry; but in case of that supply running short a large pond, fed by a passing burn, has, with characteristic foresight, been excavated at a convenient distance.

THE SMITHY.

We then visited the Smithy, where all kinds of smith work, in the way of jobbing and repairing, is done. Over and above this all the picks and wedges are made—in fact, almost every thing from the mending of a watch spring to the manufacture of drag chains can be done at this workshop. There are three forges, and any amount of raw material lying about ready to be made into plant. When here we had a short chat with Mr Alexander Milne, who, for the past 30 years has been an employee, indeed he has been longer in the service than any workman about the place, and during that time he has performed an innumerable amount of surgical operations in the way of dressing hurt fingers, mending sore eyes, &c., &c., indeed, he has done something one time or another for every man about the quarries. "Jamie," the horse that hauls the waggons into the various lyes, is worthy of a word, for taking his services for the past eight years, we learned that in that time he had drawn at his tail something like 90,000 waggons, a work which well entitles him to the pension awaiting him. Passing along we soon arrived at the recently erected machinery for sawing the blocks into any size that customers might require.

SAWING STONES.

There are two saw frames, each capable of holding a large number of blades. The machinery is driven by a 12in. cylinder engine, the steam used being brought by means of a covered pipe from a boiler situated at a distance of about 100 yards. The main driving shaft is coupled direct to the engines, and from it the connecting rods of the saw frames proceed. Each of the two saw frames is fitted with a self-feeding motion, which very gradually lowers and raises it in a sort of rocking fashion. This constant swinging motion has the effect of gradually working the blades—they are merely long strips of steel about $\frac{1}{4}$ of an inch in thickness, and devoid of teeth—right down through the block, and that with an absolute certainty, so far as evenness is concerned. We carefully