

UR 1954/143-147

INTRODUCTION

About the middle of last year, two geologists from this Department, Messrs. Elliston and Nixon, spent some time on a geological survey of the Stanhope Colliery and the surrounding countryside. Unfortunately no report was prepared and only a series of unfinished plans left by these officers who have since left the Department. A conference was held with members of the Company and apparently certain suggestions made. Since their visit most sections of the underground workings have become inaccessible. In the preparation of plans to accompany this report, use has been made of their unfinished plans.

The Company have purchased a Diamond Drill and during the past year have put down four holes.

The economic recovery of coal from the present workings is now limited by a series of faults and the Company is operating only by taking out pillars from the present and older workings. This project will be completed within a year so that it is imperative that unfaulted portions can be located. The Company are, therefore, asking the advice of the Department in this location.

HISTORY

In 1922, the Coal Resources of Tasmania was published and an account of the workings &c. in this area given. At that time the principal workings, and even these were of very limited extent, were called the Mt. Christie Coal Mine. These workings are on a lease now worked by Mr. N. Fenton and are located on the opposite side of the Mt. Rex Road from the Stanhope Colliery. The Buena Vista Coal Mine, in spite of its rather grandiose title, consisted mainly of exploratory work in the form of bores, shallow shafts and short dip adits scattered round the slopes of Mt. Christie. Apparently no appreciable tonnage of coal was obtained by this Company but it is on this site that the Stanhope Colliery has developed.

In 1931, Mr. J.W. Stanley commenced operations in what is now called the old workings and when faulting had limited this area, a new main heading at a higher level was commenced and all subsequent extraction has been from here. Recently a start has been made in taking out pillars from the old mine by means of open cuts.

LOCATION AND ACCESS

The Stanhope Colliery is located about $5\frac{1}{2}$ miles from Avoca and about 900 feet above that town. At three miles along the Rossarden Road a road branches to the left and ascends very steeply to the Colliery.

The Bonney's Plain locality, on the south side of Mt. Christie is about two miles from Stanhope but is best approached from Hanleth Siding six miles towards Conara from Avoca. From the highway at this Siding a road crosses the South Esk and leads for three miles to the homestead. From here to the

old adits a car can be driven over the paddocks, a distance of two miles.

GEOLOGY

Both series of the Triassic outcrop in this neighbourhood. The coal seams, of course, are contained in the Felspathic sandstones. Stratigraphically below these but here occurring in faulted relationship to the north-east are the more siliceous Ross sandstones. These latter rocks form much bolder outcrops. Intruding the felspathic sandstones is a dolerite mass probably in the form of a sill.

One of the largest and best defined faults in Tasmania is located just to the north-east of the workings where it courses in a north-westerly direction. The downthrow side is to the west and Permian strata similar to that exposed in the Valley of Castle Carey Creek may be seen at the "Castle" itself at least 1500 feet higher in elevation. Most of the outcropping rock to the east of the fault is granite. This fault finds an echo in the many smaller faults exposed by the workings and the larger ones visible on the ground or from the aerial photographs.

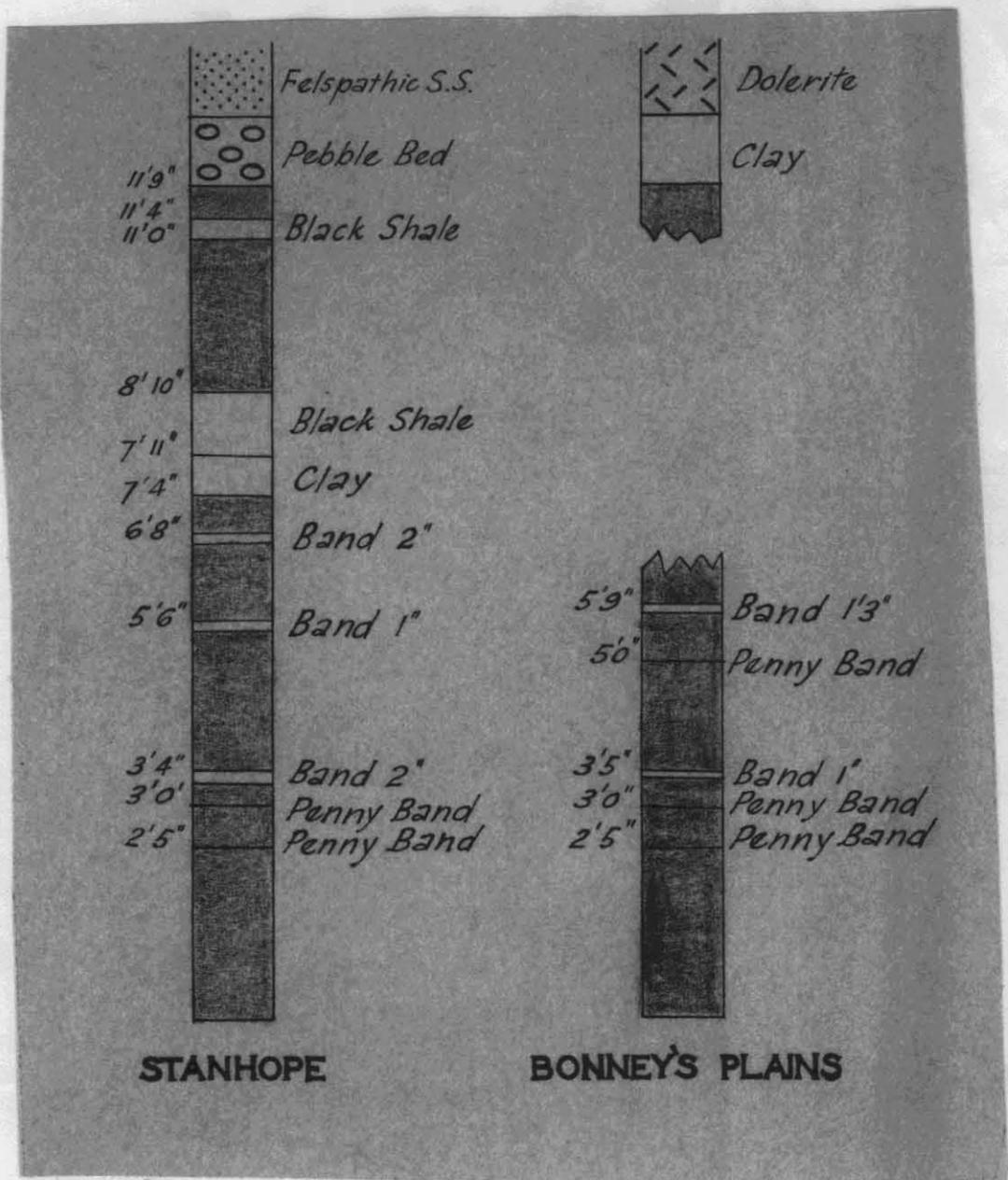
These Triassic rocks are never really folded but minor rolls can be seen in the coal seam at various points. The strike and dip of the strata differs from place to place and with faulting so frequent many variations of strike can be measured. However, in the Stanhope area the general strike is about 150° with a dip to the south-west at 4 to 5 degrees; while at Bonney's Plains the strike in the adits is about 100° with a dip to the south of about 5° .

THE COAL SEAM

It is the B seam, as described in the Coal Resources of Tasmania which is mined at Stanhope. The seam is well exposed in the open cut, which has been started to extract the pillars in the old workings; and shows a thickness of nearly 12 feet of coal; containing 7 bands of shale varying from penny bands to 18 inches. Black shale, or clod occupies about 15 inches near the top of the section here but it is stated that in the south-eastern part of the workings (now inaccessible) this clod disappears. Above the coal seam is about 1 foot of pebble beds and above these the normal felspathic sandstone. Sometimes these pebble beds thin out.

At Bonney's Plains, it is not possible to see the whole section in one place but that portion able to be measured (from the base up) in No. 2 Adit agrees very well with the Stanhope seam. In the old adit, the top of the seam is covered by about a foot of shale and above this is the dolerite intrusion.

Sections of the seam at the two localities are shown as follows:-



No samples of the coal were taken at any locality as the question of the grade is not the object of this investigation.

FACTORS INFLUENCING FUTURE DEVELOPMENTS.

Before any opening can be made in any particular location, two problems need to be solved.

1. The nature of the dolerite intrusion.
2. The amount of faulting in that area.

1. If the dolerite is in the form of a sill, then the coal extends beneath it and can be mined. If the intrusion is a dyke however, the coal measures will be cut off at a point not sufficiently far from their outcrop to warrant their development. Most of the evidence fortunately points to the former conclusion. The jointing of the outcropping dolerite is mainly vertical and jointing is usually at right angles to the cooling surface of the intrusion. At the Bonney's Plains end, positive evidence of a sill is seen on the roof of the old adit, where the dolerite is only a foot above the coal seam. The upper part of the hill stands out in the bold relief from the broader flatter portions occupied by sandstone. A section taken for two miles across Mt. Christie from one dolerite boundary to another shows that the base of the dolerite dips at about $4\frac{1}{2}^{\circ}$ in this direction; about half a degree more than the coal seam. The only evidence pointing to the dolerite being a transgressive body is the fact that dolerite outcrops to the north-west at a much lower elevation,

4.

but this is probably a separate intrusion. The fact that the dolerite boundary on the Stanhope side of Mt. Christie roughly corresponds to the position of a large fault seen in the south portion of the workings does not constitute any definite evidence either way. It is a pity that No. 4 Bore, started in the dolerite, had to be abandoned before any definite proof could be obtained but it is possible that No. 5 Bore will give this information. Of course even if the main mass of dolerite is a concordant intrusion it must have had feeders from somewhere and it is quite likely that some dyke like bodies may exist below the main mass. However, I am of the opinion that this main portion is a still structure; but would suggest that a boring campaign in any locality should start off with a hole put down through the dolerite.

2. The degree of faulting, that is the number of faults and the amount of throw in each, in any one area will decide whether that area can be economically exploited for coal. Unfortunately, though some faults can be picked up by surface expression and are shown on the attached plan the only way to find out this degree is by boring. This has been already done to a limited degree to the south-east of the present workings and has confirmed a suspected fault and indicated another. The major structural feature in this area is the Castle Carey Fault, which courses at 315° and has a downthrow to the west of between one and two thousand feet. Naturally the ground near this fault is considerably broken; and the closer to this fault, the greater will be the minor displacement of the rocks.

RECOMMENDATIONS.

The Company finds that except for pillar extraction and perhaps a few small areas, the main heading is now useless. Consequently a new adit will have to be put in at a favourable site.

To the west of the workings it is considered that the area in which the seam is probably contained is too small and faulted to be considered.

To the east, boring has already been commenced and the area to the immediate east of the present workings has been shown to contain a large fault of displacement about 60 feet as well as at least one smaller one. However, farther east still the country from surface indications appears less broken and a bore site has been recommended here.

The results of this bore should show the form of the dolerite intrusion as well as the extent of faulting, if any between it and No. 3 Bore. Depending on the results of this hole, future holes may be sited in this area. However, the farther east, the greater the distance from existing roads and this factor must be taken into account.

However, it seems to me that indications at the Bonney's Plains locality are sufficiently encouraging to warrant the exploration of the seam here by boring. The area bored should be on the opposite side of the gully from the old adits. This location appears to have several advantages.

- (1) The seam is dipping up from any contemplated opening.
- (2) This area is much farther from the great Castle Carey Fault so that minor faulting should be considerably

less than at Stanhope.

- (3) The dolerite should be farther above the coal seam, than in the adits already opened at Bonney's Plains.
- (4) It is possible that part of this area may be suited to open cut mining.

The main disadvantage of course is that a road would have to be put in from the Bonney's Plains homestead to the site, a distance of over two miles and that the coal would need to be loaded on trains at Hanleth instead of Avoca. But once constructed, this road would have a great advantage in grade over the Stanhope Road and a distance about the same.

If boring is contemplated here then further advice as to actual siting should be obtained from here. The first bore, however, should be somewhere near the fence above the dolerite boundary.

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