

## SOUTHLAND MINES.

*Hakateri Mine.*—Development has continued on a small scale and in a northerly direction. Work is now being carried out underground.

*Hamilton's Pit.*—Opencast mining has been continued, the lignite worked being from 20 ft. to 35 ft. thick, with 10 ft. of surface cover.

*Whiterig Pit.*—Opencast mining has been continued under similar conditions.

*Otikerama Mine.*—A small amount of development has been carried out to the dip and south-east, the boundary having been almost reached in this direction.

*Croydon Pit.*—Opencast mining has been continued at the north end of the pit, and from 30 ft. to 40 ft. of lignite is being mined, with surface cover from 10 ft. to 15 ft.

*Beattie Coster Mine (Mataura).*—No further development work took place underground and the whole of the output was obtained from opencast mining carried out to the north of the old mine-entrance.

*Green's Mine.*—Development work to the dip was abandoned owing to competition from the opencast pits. The water was allowed to accumulate in the lower workings, and the output was obtained from pillar-splitting at a higher level.

*Boghead Mine.*—Development has again continued to the dip, and levels driven out north and south. The thickness of lignite has been maintained, and nothing of importance has eventuated.

*Tipui Mine.*—Operations were suspended at this mine in September.

*Glentee Mine.*—Development has been continued in a northerly direction with the object of providing an additional air-shaft.

*Springfield Mine.*—Opencast mining was continued on a small scale.

*Ota Creek Pit.*—Opencast mining was carried out intermittently.

*Terruce Pit.*—The year's operations have been confined to opencast mining.

*Te Tipua Pit.*—An opencast pit was commenced on Mr. Hunt's property, but was abandoned after mining 124 tons.

*Firelight Pit (Waimumu).*—Operations were suspended at this opencast pit during the year.

*Ruby Pit.*—Opencast mining has been carried out in a satisfactory manner. The face of lignite worked is 16 ft. thick, with 10 ft. of surface cover.

*Otama Valley Mine.*—Operations were suspended at this mine owing to the limited demand and competition from opencast pits.

*Lawrence's Pit (Landslip).*—Opencast mining was continued under difficult conditions, surface cover being removed by sluicing.

*Argyle Pit.*—A small amount only of opencast mining was carried out.

*Diamond Pit (Ashers Siding).*—A large face of lignite, 40 ft. thick, continues to be regularly worked, this pit evidently supplying the whole of Invercargill's demand for this class of coal.

*New Brighton Mine.*—Several attempts have again been made to locate a conveniently worked seam of coal here, the result being a failure. The last attempt was at a site three-quarters of a mile east of the old New Brighton Mine. A steam boiler was installed, landing-stage and roadway were constructed, and two levels driven east in an outcrop of coal 5 ft. thick that ended in a gravel-intrusion. This is an instance of equipping a mine and then commencing to prospect for the seam.

*Orepuki Mine.*—Opencast mining was continued, adjacent to the river-bed, under difficult conditions.

*Princhester Creek Mine.*—No success has yet attended the efforts to locate a continuation of the seam of coal, and a small quantity only was won from the old opencast pit.

*Lynwood Mine (Te-Anau).*—A small amount of coal has been mined, chiefly to supply the hotel requirements.

*Terrace Mine (Kingston Crossing).*—Production has been continued from this old mine, and, owing to its favourable geographical position, a reasonable demand appears to exist for this lignite. All the new places are being driven more satisfactorily, and the area is being developed to the south.

*Marleyvale Mine.*—The development of this area has proved it to be a detached block of coal lying at a steep grade and situated between two faults. Levels were driven north and south and pillar-extraction was commenced. The seam is up to 30 ft. thick, and only a portion will be recoverable. Boring operations carried out to the north and north-west resulted in failure to find a workable seam, and the future prospects of this mine do not appear bright.

*Star Mine.*—Development work and boring operations having proved unsuccessful, the year's output has been obtained from pillar-extraction. All pillars have been extracted to within 150 ft. from the main dip heading, and a commencement was made towards the end of the year to win the lower-lying dip pillars. The party has been fortunate inasmuch that, instead of the roof in the goaf falling it sagged, and the floor heaved, thereby closing the goaf without surface subsidence. This, of course, has been due to the small thickness of the seam here. Unless more workable coal is found the end of operations at this mine is drawing near.

*Birchwood Mine.*—Pillar-extraction was continued in the east rise section, conditions being normal, and the area was completed and was permanently sealed off during the year. The development of the east levels from the new dip proved this coal to be inferior and faulted, and pillar-extraction was commenced here towards the end of the year, and is being continued. Development work has been carried out in the main dip extension for a distance of 400 ft.—i.e., to the north—and the seam so far has shown signs of improving in quality, and is approximately 20 ft. thick. However, levels broken away have proceeded a short distance only, and, in view of the faulted nature of the adjacent country, it is yet too early to forecast as to the probable ultimate outcome. The future life of the mine depends upon the dip development, and there is no doubt that further boring operations would be a wise measure, as present development work is simply probing in the dark in what appears to be a faulted area.

*Linton No. 2 Mine.*—Pillar-extraction has been continued in this mine, and this is all that remains to be done here. The pillars have been extracted up to the No. 4 levels north and south. Excessive weight continues to be experienced in the working of these pillars, owing to the narrow strip of coal left to protect the dip heading. The fire stopping at No. 1 south level requires constant attention, and, owing to its proximity to the main haulage road, any extension of fire here would be a deciding factor in the life of this mine. However, any tendency to heat has been effectively dealt with so far. The mine has been worked two shifts to expedite the extraction of the remaining pillars.

*Linton No. 1 Mine.*—Development work at this mine was given more prominence during the year than has been the case for some time. The main dip heading was extended a sufficient distance to allow of the opening up of No. 7 and No. 8 sections. Two main headings were driven west in the No. 7 section to a point 2 chains from the Birchwood boundary, and the development of a panel in this section is proceeding in good-quality coal. Two rise headings are being driven in the No. 8 section with the object of connecting with the north-east headings in the No. 5 section. Development work was suspended in the latter section pending the boring of the area beyond the fault to the north and east. Pillar-extraction has continued in the No. 3 section, and a satisfactory percentage of coal was obtained here. In the No. 6 section the No. 3 panel adjacent to the Birchwood boundary has been developed and a commencement made on pillar-extraction. Pillar-extraction was continued for portion of the year in the No. 2 panel, but this section was temporarily sealed off as a result of heating. In the No. 1 panel, in No. 4 section, work was resumed during the year. This section had been sealed off owing to heating, but was successfully reopened and pillar-extraction again commenced. The coal in this section is more friable than in other sections, and consequently is more liable to spontaneous combustion, and is definitely more dangerous during the period of pillar-extraction. The coal here is 40 ft. thick, and the development places do not stand so well during the period when gallery places are being driven. The development areas have exuded methane freely. However, the places have been kept reasonably free from accumulations. During the year trouble was experienced with some of the fire stoppings in the original No. 1, or old horse level, workings. However, this was effectively held in check. The "gallery," or "double storey," method has been applied in all pillar-extraction. Although at times not so efficient and methodical as could be desired, I am convinced that the safety of this method of pillar-extraction at this mine has now been proved, if it is carried out thoroughly. The fact that the top 3 ft. or 4 ft. of the seam is inclined to be stony, and consequently stronger than the remainder of the seam, helps considerably towards the safety of the miners, and, by keeping the same miners in these places for a long period, they become accustomed to this work and are more alert to any impending movement of the overlying measures.