

## ANNEXURE A.

## SUMMARY OF REPORTS BY INSPECTORS OF MINES.

## NORTHERN INSPECTION DISTRICT (Mr. WILLIAM BARCLAY, Inspector).

## OUTPUT OF COAL.

The Northern Inspection District produced 769,858 tons of coal during the year 1929. Coal is being worked in three separate districts—namely, North Auckland, Waikato, and Taranaki. The bulk of the output, 651,771 tons, came from the Waikato district, and is the largest yearly output so far achieved from this brown-coal field. The North Auckland district produced 116,109 tons, a decrease of 63,351 tons, due to the cessation of mining operations in the Hikurangi Shaft Colliery for a period of ten months as a result of the flooding of the mine-workings. The Taranaki district yielded 1,978 tons from two small coal-mines which are under course of development to market larger outputs in the future. The coal-seams in the Waikato district are economically worked. They vary from 5 ft. to 20 ft. in thickness and lie at shallow depths with outcrops to the surface, thus affording easy means of access to the moderately inclined seams whose gradients vary from 1 in 8 to 1 in 40. The mines are equipped with electrically driven endless-rope haulages. The ordinary method of working is bord-and-pillar on the approved panel system, with bords 14 ft. wide and 10 ft. high and pillars not less than 60 ft. square. Some 20 to 30 per cent. of the coal is got in the first working, and during recent years 60 per cent. has been got from the extraction of the pillars under ideal pillaring conditions. The Hikurangi field in the North Auckland district at deep levels is rather a difficult one to work owing to troublesome faults, and to the fact that large feeders of water are encountered when the faults are cut; water is also released from the cavities and fissures occurring in the 400 ft. stratum of limestone roof cover. The seam is sub-bituminous, and the coal got from the deep levels is in popular demand for use in locomotives. The water problem confronting the management of the two largest collieries in the North has been relieved to some extent by the Government constructing a large drain channel to drain the water lying on the low surfaces of the Hikurangi Swamp area.

## STONE-DUSTING.

Samples of road-dust have been taken and analysed systematically in all the principal mines, and generally when a sample was found to contain more than the statutory limit of 50 per cent. of combustible matter the affected part was retreated with incombustible dust of regulation fineness. Coal-dust is very rarely seen on the sides of the roadways, or upon the timbers or other elevated surfaces, where it could be dislodged to remain in suspension with the air-current. The coal-dust on the roads is produced in actual mining by the breaking of the coal, and by a process of grinding by the passage of men over coal-ballasted roads, and also, to a larger extent, by the fretting and disintegration of spilled coal from inadequately-sized pillars. Under normal working-conditions the dust on the floors is not readily raised in suspension in the air unless by the agency of exploding shots, or by violence caused by gas-ignitions. In prevention of fine coal-dust we are advocating due compliance with section 126 (c) of the Coal-mines Act to the effect that all disused roadways should be cleared of coal-dust and treated with incombustible dust before the rails are removed. The use of clay or stone ballast on the haulage-roads is also recommended, as its effectiveness in producing a suitable inert dust under traffic and mine conditions has been amply proved by the sampling and testing of dust from roadways so treated.

## TREATMENT OF SLACK COAL.

A low-temperature carbonization plant of a capacity of 250 tons per day is being installed near Rotowaro Colliery as a solution of the problem of the disposal of small coal from Rotowaro, Pukemiro, Renown, and Waipa Collieries. The directors of the Carbonization Co. have collected much valuable technical data in connection with trial shipments of brown-coal slack submitted abroad to low-temperature tests, and are hopeful regarding the ultimate commercial success of the process adopted for recovering oil and other by-products from the slack coal.

## SUMMARY OF OPERATIONS AT EACH COLLIERY FOR THE YEAR 1929.

*Hikurangi Coal Co., Ltd. (Shaft Colliery).*—Operations during the year were affected by a serious flooding of the whole of the mine-workings. During the month of January an upthrow fault was encountered at the end of McKenzie's dip which released a volume of water estimated at 100,000 gallons per hour. The flow of water rapidly covered the installed pumping machinery both in the dip and at the bottom of the winding-shaft. An attempt was made to hold the water at a point 30 ft. from the bottom of the shaft, but, owing to the effects of the mineralized water upon the impellers of the pumps and the joints of the pipes, the emergency pumps had to be withdrawn above the rising water. The flooding of the workings was primarily due to the drainage of surface water into the mine through the fault break under the Hikurangi Swamp area. A comprehensive drainage scheme, with drains designed to remove the standing surface water from the swamp to the Jordan River, was in course of development, and after the flooding of the colliery Government aid was successfully secured for the purpose of expediting the work in connection with the construction of relief drains ahead of the major scheme. By the month of June the water had risen 167 ft. up the shaft; at that point it found access into the neighbouring colliery (Wilson's) through the barrier at No. 8 fault. The roof cover at the barrier between the collieries had been weakened by the extraction of the pillars on both sides to such an extent that the subsidences afforded channels for water-percolation. Wilson's Colliery was seriously inundated, but the respective coal companies subsequently agreed to a resumption of pumping in the shaft colliery, Wilson's company paying the expenses of pumping so long as the water was kept lowered to a point where it would not flow into Wilson's Colliery. Two additional pumps of a combined capacity of 95,000 gallons per hour were installed during the month of October, together with a new electric generator of 130 k.v.a. capacity, and the increased power resulted in the workings being unwatered early in the month of December. The recovered workings were in good order. Mining operations were resumed on the 18th December, and a daily output of 350 tons is being got from the rise sections.

*Wilson's Collieries, Ltd.*—In common with other mines in this district, the company experienced a rather anxious year, due to the water inrushes and to the fact that the installed pumps were unable to cope with an additional flow of water, estimated at 50,000 gallons per hour, from the Hikurangi Colliery. Early in the month of June the whole of the available generating and pumping machinery was pressed into action for the purpose of holding the inrush at No. 8 pumping-station. Frequent drops in the steam-pressure resulted in the dip pumps being withdrawn up the main dip before the rising water. On the 21st June the main dip, slope dip, and No. 7 sections were flooded, leaving only No. 6 section and the stone-drive pillar section available for coal-production. Relief was obtained by a resumption of pumping in the Hikurangi shaft, and when the water was lowered 10 ft. in the shaft normal water conditions prevailed in Wilson's Colliery. Two pumps were operated intermittently when power could be spared for lowering the accumulation of water in the flooded dip sections, and the working-places were recovered towards the end of the year. The pillars have been successfully extracted from the stone-drive section. In No. 6 section north the seam has thickened from 4 ft. to 6 ft., and the stone band has disappeared from the seam in places to the rise. Approximately one-half of the 9 ft. seam