At the following mines firedamp mixtures have been reported most frequently by deputies during the year :---

					Number of Occasions.	Maximum Estimated Accumulation.
Taupiri Extended				• •	63	18,000 cub. ft.
Kaitangata No. 1				• •	65	500 cub. ft.
Castle Hill					20	Unspecified.
Liverpool No. 1			••		24	300 cub. ft.
Liverpool No. 3	••	••	••	•••	20	1,000 cub. ft.

Only two ignitions of gas came to my knowledge during the year. On the 21st March Michael Hallinan received burns from an ignition of gas in a fireclay drive at the Brunner Mine, and on the 20th September R. Franey received slight burns at Westport-Stockton Colliery from an ignition of coal-gas distilled by an underground fire. Neither of these occurrences was notified by the manager to the Minister of Mines as required by section 10 of the Coal-mines Act of 1914. Explosives. An adequate supply of Imperial " permitted " explosives was available during the

Explosives.—An adequate supply of Imperial "permitted" explosives was available during the year, but there has been from some unexplained cause a great number of missfires owing to defective detonators, also incomplete detonation of "permitted" explosives and gelignite, which must chiefly be attributed to defects in manufacture. At the Liverpool No. 1 Colliery, which is a comparatively small mine, between the 2nd October, 1918, and the 13th March, 1919, the number of missfires was 179, five of which were due to defects in the wires from the exploder, eighty-nine to defective detonators, and sixty-six to defective "permitted" explosive. At Taupiri Extended Colliery during 1918 165 cases of missfire and incomplete detonation occurred, due to six defects in wires, ninety defective detonators, and fifty-nine charges of defective explosive. At other collieries where "permitted" explosives and gelignite were used the results were also unsatisfactory.

Support of Roof and Sides. Notwithstanding that all the six fatal accidents which occurred during the year were caused by falls of coal, stone, or timber, and that such are the most prolific cause of colliery accidents in all countries, yet some miners take little notice of the regulations regarding systematic timbering, and the workmen's inspectors in their reports, to my knowledge, have never referred to neglect by the miner to protect himself by observance of Regulation 56, pertaining to the distance apart of props and the distance from the face of the nearest prop I regard this defect as the most serious in connection with the inspection and management of mines; it is most common on the West Coast, but also occurs in some of the Waikato mines, and to a much smaller extent at Kaitangata. There is also a tendency to make the bords too wide on the West Coast and Waikato coalfields.

Supply of Materials.—Although the supply of materials from abroad has been practically cut off, yet during the period of the war collieries have carried on their operations making the best of what they could procure locally and of old material from unworked mines and other sources. The shortage of steel rope and brattice was the most severely felt requirement, but no serious accident resulted from such shortage.

Electricity at Collieries.—During 1918 there has been no increase in the number or capacity of electrical installations.

The following is a summary of the annual returns, in accordance with Regulation 160 (c), regarding electrical apparatus at collieries: -

Number of	collieries at which elec	trical appa	ratus is i	nstalled				11
,,	continuous-current ins	tallations						9
,,	alternating-current ins	tallations		• •		••.		2
,,	collieries electrically li	$_{ m ghted}$	• •			••		11
,,	collieries using electric	al ventilati	ng-mach	\mathbf{ines}	••	•••		6
,,	>>	pumping	g plants		••	••		2
,,	,,	haulage	plants			• •	• •	5
,,	. ,,	screening	g plants			••	••	2
,,	,,,	miscellar	ieous pla	nts	••	••	• •	2
,,	••	locomoti	ves	• •	••	••		1
Total hors	e-power employed from	motors on	surface		• •	••		$1,741\frac{1}{2}$
	»» » »	une	dergroun	d	••	• •	••	609 <u>}</u>

(c.) OIL-SHALE RESOURCES.

During the year boring operations by Government diamond drill were carried out near Waikaia, Southland, by the Waikaia Oil-shale Development Company (Limited), a company having a nominal capital of £5,000. Seventeen boreholes were drilled, in six of which an oil-shale seam varying in thickness from 1 ft. to 17 ft. 9 in. was proved, also in some of the boreholes payable alluvial gold was found in the surface-gravels. The company is now obtaining a lease to cover these developments. The following is a recent analysis of Waikaia oil-shale by the Dominion Analyst :---

Fired of	nhan						Per Cent.
Valatila hydrogenhan		• •	••	••	••	25.04	
Volatile	nyuroea	arbon	••	• •	••.	••	00.04
Water	••	••	• •	••	••.	• •	9.60
Ash	••	••	••	••	••	••	41.85
			*.				
							100.00
	Total s	sulphur					3.41