(*e.*) Electricity at Collieries.

[Regulation 160.]

During 1920 there has been but small increase in the number or capacity of electrical installations. The following is a summary of the annual returns, in accordance with Regulation 160 (*e*), regarding electrical apparatus at collieries :—

Number of collieries at which electrical apparatus is installed	16
Number of continuous-current installations	15
Number of alternating-current installations	3
Number of collieries electrically lighted	14
Number of collieries using electrical ventilating-machines	8
Number of collieries using electrical pumping plants	5
Number of collieries using electrical haulage plants	5
Number of collieries using electrical screening plants	2
Number of collieries using electrical miscellaneous plants	2
Number of collieries using electrical locomotives	1
Total horse-power employed from motors on surface	2,125
Total horse-power employed from motors underground	773

The use of electricity has never been attended by any serious accident in or about the collieries of the Dominion, although several accidents have occurred at metalliferous mines.

SECTION V.—LEGISLATION AFFECTING COAL-MINING.

The Coal-mines Amendment Act, 1920, which was passed during the year contains the following provisions :—

Section 2 provides that on the expiry of any lease a new lease may be granted over the lands comprised in the original lease. Section 3 gives the Governor-General power to make regulations with respect to sanitary conveniences at mines. Section 4 makes provision for re-examination of an unsuccessful applicant for a mine-manager's certificate of competency on a date or dates to be fixed by the Chairman of the Board of Examiners. Section 5 provides that applicants for certificates of competency who hold certificates of corresponding class from other countries shall be of good character and repute. Section 6 repeals section 14, subsection 3, of the principal Act, pertaining to royalty, in the case of the long-closed Mokihinui mine. Section 7 provides that ventilation of mines shall be produced continuously during all times when there are any persons in the mine, and also during such other times as may be prescribed. Section 8 restricts the withdrawal of timber of mines by blasting to those mines where permitted explosives are required to be used. Section 9 amends previous legislation, and provides that, except by the consent of the Minister, a miner shall not be put in charge of any place in a mine unless he is of the age of twenty-one years or upwards and has had at least three years' experience in underground coal-mining, of which at least six months shall have been at the face with an experienced coal-miner, or has had at least two and a half years' experience in driving, stoping, timbering, or shaft-sinking, or in rises or winzes in connection with underground metalliferous mining, together with six months' experience at the face with an experienced coal-miner in underground coal-mining. Section 10 applies to the apportionment of grants appropriated for the development of the coal-mining industry. Section 11 authorizes the granting of licenses for coal-mining tramways.

Regulations under the Coal-mines Act, by Order in Council dated 12th April, 1920, contained provisions of which the following is a summary :—

26. An increase from 2½ to 5 per cent. in the amount of the allowance which may be made to a miners' association towards the expense of management of the Sick and Accident Fund.

83. (*a.*) In all working-places exceeding in height 10 ft. there shall be kept a pole, having a steel pricker attached at one end and a steel ferrule at the other end, for sounding and, if necessary, removing roof. (*b.*) In all working-places exceeding 12 ft. a ladder shall be kept.

134. The explosive "ligdynite" is placed in the Second (A) Schedule, and is permitted only in mines in which fire-damp has not been reported for three years.

154A. When and where the Inspector deems necessary, mechanical ventilating appliance shall be installed.

Form 14 provides for a shot-firer's daily record.

SECTION VI.—TRANSPORTATION OF COAL BY FLUME.

Of considerable importance for the economical working of coal-bearing areas situated in hilly country and distant from railway communication are the operations of the Montana Coal and Coke Company at their colliery at Aldridge, Montana, U.S.A. By means of a covered rectangular box flume, 10 in. by 10 in. internal dimensions, constructed of 2 in. boards and lined with black sheet iron, 0·0187 in. in thickness (No. 26 U.S.A. gauge), with a minimum gradient of 4 ft. per 100 ft., for a number of years 35 to 45 tons of coal per hour has been transported 9,000 ft. by means of a flow of 1·58 cubic feet of water per second (1·58 New Zealand sluice-heads). Based upon these results, if a storage dam is available at the head of the flume this flow of water would be sufficient to transport, through a flume of three times greater sectional area, three times the above quantity of coal in one shift of eight hours—*i.e.*, from 840 to 1,080 tons. A somewhat crude adaptation of the Montana plant has been constructed near Reefton at the small coal-mine near Merrijigs, the dimensions and inclination of the Montana outfit being followed, but the box flume is unlined and uncovered, the flume is about a mile in length, and is now being extended about a mile farther towards Reefton. The semi-bituminous coal is not perceptibly broken during water transport. The necessity for lining the box is proved by the fact that although only about 1,500 tons of coal had