

SECTION IV.—GENERAL REMARKS.

VENTILATION.

Attention continues to be directed to the improvement of ventilation, the most important department of all coal-mining operations, which not only affects the safety and health of all those whose duties take them within the mines, but by enabling the miner to obtain an adequate supply of pure invigorating air while occupied at his arduous calling the mine-owner unquestionably reaps a considerable benefit by the increased production of coal, the result of such improved conditions.

The obsolete and misnamed system, "natural ventilation," which would at times be more accurately described as "stagnation," is gradually being superseded at collieries worthy of the name, by centrifugal fans of adequate power, which, when accompanied by judicious splitting of the air and systematic bratticing to the working faces, is productive of the best results. The class of fan most favoured at the present time is that of the drum or multivane type, such as the Sirocco, and fans of this type are about to be installed at the Millerton Colliery of the Westport Coal Company (Limited) and at the mines of the new Paparoa Coal Company (Limited), near Greymouth. The Westport-Stockton Company, however, are installing fans of the improved Waddle type (a well-known and efficient ventilating machine), and these will be driven electrically. At the Nightcaps mine a second fan of the Hayes type has been installed for the ventilation of No. 2 section of the mine.

ELECTRICITY IN MINES.

The permanent establishment of electricity as a motive power on the principal coalfields of the world is proved by recently published statistics. In the State of New South Wales a Royal Commission has recently presented a report on this subject, and it is therein stated that at the present time sixteen collieries have sixty-two coal-cutters, six have eight haulage equipments, nineteen have thirty-three pumps, six have ten ventilating-fans, and five have seven motors applied to other uses, all being electrically driven.

In New Zealand (where the Allandale Colliery was the first to instal this power for general purposes, and the Blackball and Denniston collieries for one department only) the new Westport-Stockton Company are about to make use of it to its fullest extent, including electric traction within the mine on a permanent-way of 3 ft. gauge.

With the advent of this power there arises the necessity for the establishment of rules for the protection of life and property, for electricity is a power with which no liberty may be taken. The dangers connected therewith are due to shock and fires, but it is reassuring to be able to state that when a well-designed plant has been properly installed and is under the charge of a capable man there should be little, if any, danger in its use, even with high voltage. In Europe very large high-tension installations have been successfully worked without accident, owing to the observation of proper precautions. The voltage that will cause death varies with circumstances—whether the individual is wet or dry, and the state of his health. A shock that one man can stand with but little inconvenience may cause the death of another. The chief causes of shock are leakages, which render metal "alive" that is thought to be inert, and by leaving portions of the circuit "live" where they are accessible to persons unacquainted with electrical risks.

Fires may be caused by electricity through over-heating a conductor by causing it to carry an excessive current, by leakage, or by arcs or sparks. Cases have been known where fine coal-dust that settled on incandescent lamps has become heated to such an extent as to become red-hot, although it is doubtful whether a single spark would ignite fire-damp, yet a series of sparks can.

The New South Wales Commission have suggested that the mine electricians be required to pass an examination as to competency, and the adoption of such a regulation in this Dominion seems worthy of consideration. The New Zealand Board of Examiners under the Coal-mines Act have at their last annual meeting unanimously adopted a regulation making practical elementary electricity a compulsory subject for all candidates for mine-managers' certificates of competency, and lectures on electricity are now delivered at the principal schools of mines throughout the Dominion.

MINING OPERATIONS.

On the North of Auckland coalfields coal-mining operations continue to supply an annually increasing output, although no new collieries have been opened during the year.

The Hikurangi Colliery, which appeared within measurable distance of exhaustion, has received a further lease of life by the absorption of the adjoining Phoenix and West Bryan properties.

At the Kiripaka Colliery well-placed bore-holes have proved what appears to be an extensive coalfield situated to the dip of the Ngunguru section.

Near Tangowahine, on the Northern Wairoa River, where a coal outcrop of superior quality and considerable thickness was accidentally discovered during bush-clearing operations in the early part of the year, nothing has been done to prove the extent of the coalfield, but an analysis of the coal by the Dominion Analyst places it in the same class as that mined at the Taupiri Colliery. Attention will, no doubt, be given to this coalfield when the more accessible mines in the Auckland Province are unable to supply all the requirements of an annually increasing demand for a useful household coal.

At the Taupiri Colliery an increased annual output has to be recorded. The mining operations of this company have, as heretofore, been concentrated upon the whole coal within their