

CHIEF ENGINEER ARCHIBALD, Superintendent Brown, and General Manager Pottinger, of the I.C.R., accompanied H. C. Stanley, chief Engineer of the Queensland Government, on a tour of inspection on the Intercolonial Railway recently.

DR. SHEARD, Medical Health Officer, Toronto, has received from the Dominion Government the appointment of honorary secretary for Canada of the section of anatomy and physiology of the second Pan-American Congress, which will be held in the city of Mexico on November 16, 17, 18 and 19.

NEW IDEAS.

SELF-CONTAINED MOTOR CARS.

George A. Washburn, of Cleveland, Ohio, has devised an arrangement consisting of a gasoline engine, dynamo-motor, and storage battery combination, which seems to be closer to a solution of a self-contained motor car than any thus far devised. The engine has only a moiety of the maximum power required, and the combination is thus operated: When the car is running on level stretches the motor or engine may be used alone, and when descending a grade the power is cut off from the car axles and the motor operated as a dynamo, charging the cells; when ascending a grade, the engine and motor both propel the car, the latter energized by the storage cells. Whether such a combination will compete with the central station system in present use, or the new combination of storage battery and trolley, remains to be seen, as the gas engine cannot be made as noiseless as an electric motor, and the occasional failure of perfect combustion will cause objectionable smells.

ELECTRICAL INSPECTION IN PITTSBURG.

About a year ago a scheme was conceived by Morris Mead, the city electrician, which has proven to be of much good to the city of Pittsburg. The idea was to have the erection, construction and inspection of all appliances used for electrical purposes placed under the supervision of the department of public safety, in order that safety, comfort, convenience and welfare of the people, and also protection from careless or negligent use of dangerous substances, might be insured. The ordinance provided that the department of public safety be given the supervision over all electrical conductors now in use in the city, which includes telegraph, telephone, trolley and other lines and appliances in which electricity is used, and the construction thereof, says the *Electric Engineer*. It also vested the department with the power to supervise the construction of wires and appliances used in private houses, and gave them the right to prohibit the use of either wire or appliance that would be defective or dangerous, either in material or workmanship. A number of inspectors were appointed, whose duty it is to visit buildings and thoroughly examine the electric wires or appliances therein. If a defect is found the owner of the building is notified to attend to it at once, and the refusal to take cognizance of this notice subjects the offender to severe punishment. Since the adoption of this new idea—eleven months ago—1,339 buildings have been inspected, which is on an average of 122 per month, to say nothing of the outdoor work that has been done. Many defects have been found, and on many occasions these would have been the cause of much damage had they not been attended to. The city, in this respect, is in a very good condition at present, which is due to the passing of the said ordinance. No fires of any account have been reported as caused by defective electric wires, and many accidents among machinists who have to tinker with electrical apparatus have been avoided. The scheme was a good one, and as time goes by the benefits derived therefrom will be more noticeable.

ELECTRIC THRESHING MACHINES.

Farmers in Pennsylvania are using electric power for threshing, the change from portable boilers and engines being caused by the fact that sparks from the boilers have caused many fires, and it is thought that by using motors this danger is eliminated.

WATER IN RESISTANCE.

Notes by Prof. Fleming show that water is quite non-inductive when used as a resistance in an alternating current of 2,000 volts, and that the product of ampere and volt readings will be the actual energy consumed.

LOSS IN CONVERTERS.

Prof. Fleming has reported that the losses in alternating current converters in Great Britain from the magnetizing current (on open circuit) are equal to 1,600,000 k.w. hrs., or about 16,000,000 lbs. coal, amounting to \$30,000 per annum.

CAR PAINTING BY COMPRESSED AIR.

Car painting by compressed air is being tried on the Pittsburg & Lake Erie Railway. The yard is well supplied with air pipes, and the barrel of specially prepared paint is mounted on a hand

truck so that it can be moved to any part of the yard. The air line consists of 100 feet of 1-inch heavy hose; the paint suction hose of 50 feet of half-inch heavy hose. The barrel is equipped with a float of pine wood with 4-inch hole in the centre. Over the hole is a small hose-bearing tower, used as a support and hose regulator, insuring a uniform feed of paint. This device is light in weight, and can be readily carried to top of a box car for spraying the roof. The time for carefully spraying a box car is 30 minutes. To employ a man to follow with a long-handled 8-inch whitewash brush, 30 minutes additional, making labor cost one hour per box car, each coat. To coat a coal car of 60,000 lbs. capacity takes 20 minutes for each coat, including the time of two men. This road is also using a device for spraying on paint for the lettering, which, for covering uniformly, is considered a decided improvement over the stencil brushes, and will lead to a great saving in the wear and tear of stencil plates.—*Engineering News*.

VALUABLE FUEL IN ALGOMA.

The expected report by Dr. A. P. Coleman, provincial mineralogist, on the reported discovery of coal in Algoma, Ont., is not conclusive in either direction. The substance is apparently not anthracite coal, but selected specimens are admirable fuel, and if the quality improves with depth of working and the deposits prove extensive, the fortunate discoverers will not quarrel about the name. Following are some of the points discussed by Dr. Coleman in his report. He says:

"A select specimen of the pure mineral when burnt gave only 4.10 per cent. of ash. As the specimen analyzed came from the surface of the deposit, it seemed probable that the amount of ash might be above the average. On this account assays were made of a general sample of the specimens taken by myself, and of a picked sample representing good material from the bottom of the pit. The results are as follows:

	Average sample.	Best sample.
Volatile matter (including four per cent. of moisture)	5.3	5.3
*Fixed carbon (coke)	64.7	74.2
Ash	30.0	20.5
Total	100.0	100.0
Specific gravity....	2.0784	1.8708

"It will be seen that the results of the different analyses vary greatly in the amount of ash, which is less in the sample from the bottom of the pit than in those from nearer the surface.

"Looked at from the economic side, it is probable that the anthraxolite from Balfour may have considerable value as a fuel for local use. Hard coal is sold in Sudbury for \$9 per ton, and this fuel could be laid down in that town for less than half that amount. If it should prove to contain less ash than at present on sinking upon the deposit, the anthraxolite should have the ordinary uses of anthracite. It appears to be too fragile, however, for use in iron furnaces, which require a fuel capable of resisting a considerable crushing force. The amount of anthraxolite available can of course only be guessed at. If the vein goes down a hundred feet with its present area of about five hundred square feet, it would contain about 3,000 tons, and two hundred feet would of course double that amount. The vein may be worked out in a comparatively short time, as was the case with the somewhat similar vein of albertite in New Brunswick some years ago. The source of the anthraxolite is probably to be looked for in bituminous matter contained in the adjoining beds of slate, which carry 6.8 per cent. of carbon. By metamorphic action most of the volatile matter has been removed from the once fluid or plastic bitumen, leaving the present cracked and quartz-cemented solid anthraxolite. As to the age of the deposit, there is no evidence to show that the slates are later than Cambrian, as decided by Dr. Bell; but it is evident that these slates must have been consolidated and fissured, probably also faulted, before the original bitumen flowed into its present position. In what geological age this took place, it would be rash to venture an opinion. Other finds of a similar mineral are reported from the Sudbury region, and a very coal-like specimen was given me from Fairbank township, some miles southwest of the Balfour deposit. An assay showed, however, only 10.3 per cent. of carbon in this specimen, so that if this is an average sample, the material is worthless as a fuel."

* The percentage of fixed carbon in the coal now used by the Toronto water-works is 87.79.