

It is said the Montreal & Southern Counties Ry. Co., which was incorporated by Dominion legislation in 1897 to build a railway operated by electricity or any other power except steam, from the northern limit of the county of Chambly to Sherbrooke, is intended to connect with the Sherbrooke St. Ry.

**American St. Railway Association.**—The annual meeting will be held in Chicago, Oct. 17-20 next. The subjects for discussion will be: Maintenance of car equipment—Modern street railway shops; their design, machinery & shop practice—Train service & its practical application—Construction & maintenance of street railway tracks—Investments in street railways; how can they be made secure & remunerative?

**B.C. Electric Ry. Co.**—The Vancouver City Council has granted leave for a double track extension on Davie Street to English Bay for 11 years on a percentage basis. Beginning this month, drawings will be made at the rate of £2,400 a year to redeem the registered bonds of 1897. Considerable additions are being made to the plant & equipment.

The Co. is having 6 motor cars built in the east.

**The Gorge Line.**—The Niagara Falls & Lewiston R. R. Co., otherwise known as the Gorge road, went into the hands of a receiver Feb. 16, on the application of a majority of the directors. Justice Childs granted an order appointing J. R. Megrue, of New York city, temporary receiver. All creditors are directed to show cause before G. G. Davidson, referee, in June, why the corporation should not be dissolved, as petitioned by the directors. In the schedules of the assets & liabilities filed the total assets are figured to be about \$1,125,000, & the liabilities about \$1,140,000. The principal assets are the construction account, \$537,801, & the value of lands & right of way \$532,295. The liabilities consist of notes, bonds, mortgages & smaller accounts. Capt. J. M. Brinker, one of the stockholders, & until recently President of the Co., said that the road did not make any money last year, & this fact, with heavy losses from damage suits, was responsible for the insolvency of the Co. It is said the Co. will be reorganized as soon as plan can be agreed upon.

**Street Railway Mileage.**—At the end of 1898 there were 673 miles of electric railways in Canada, against 510 in 1897. The no. of cars in 1898 was 1,711, against 1,245 in 1897.

**Winnipeg Electric Street Ry.**—At the recent annual meeting the following directors were elected: J. Ross, Sir Wm Van Horne, R. B. Angus, D. D. Mann, W. Whyte, F. M. Morse & A. M. Nanton.

It is said that, in consequence of recent fatal accidents, the Co. will equip its cars with fenders.

Another dynamo has been added to the Co.'s plant. The plant is also being improved by the addition of a vertical engine of the direct connected type, in the designing of which a number of novelties have been introduced. The engine is 30 ft. long, 15 ft. wide, 22 ft. high, & weighs 60 tons. The high pressure cylinder measures 13 ins. diameter, & 24 ins. stroke, the admission valve being of the pinion balance type, operated by a shaft governor. The exhaust valves are of the Corliss type, operated by a positive eccentric. The low pressure cylinder is 36 ins. in diameter & 34 ins. stroke. The valves on this cylinder are all of the Corliss type, the steam & exhaust being operated by separate eccentrics. The eccentrics & generator are driven from a reduced extension of the main shaft, by which system the eccentrics are reduced to the smallest possible diameter, thus reducing friction to a minimum, also reducing the distance between high & low measure cylin-

ders, & preventing all possibility of oil coming in contact with the generator. The fly-wheel is 15 tons in weight, & is designed with a solid rim and arms, cut separate at the centre & secured to a solid hub, by this means preventing internal strain. Its strength is 500 horse power; velocity, 150 revolutions a minute; initial pressure, 125 lbs. The engine, which represents \$10,000, stands on an iron base plate weighing about 8 tons.

## TELEGRAPHS & CABLES.

### Winnipeg Office C.P.R. Telegraphs.

On the evening of Jan. 26 the C. P. R. Telegraph Department at Winnipeg shifted its main office from the old quarters at 471 Main St. to the corner of McDermott & Main Sts. The interior of the building, which is a 4-story one, was entirely rebuilt & an extension added to the rear. The ground floor is occupied by the telegraph & ticket offices, the next 2 floors are divided up into offices & leased to outside parties. On the top floor is located the operating room & its adjuncts. On the ground floor the counter, partition & fittings are all quartered oak, the floor is laid with small tiles, the base & the tops of the counters & desks for customers are all of polished marble. The two offices are separated at night by a handsome metal iron gate. The lighting fixtures are arranged for both Auer & electric lights, & are of oxidized copper of a very handsome design. The ceiling is covered with pressed steel plates. It is really the finest office of any description in Winnipeg. Communication is maintained with the operating room by means of pneumatic tubes, the compressed air being supplied by means of a blower & electric motor in the basement. The messengers are located in the rear, having a separate entrance. The offices of B. S. Jenkins, Telegraph Superintendent, & Inspector S. Edwards, on the 3rd floor, are very tastefully furnished, & are connected by tubes & wires with the operating room & the public offices down stairs.

In the operating room the floor is of hard maple, polished & oiled. There are 9 quarterette operating tables, providing space for 36 operators, equipped with 7 sets of duplex, 1 quadruplex, 2 half sets of single repeaters & 16 sets of single-line instruments. The tables are of white wood with cherry tops, & are cut so that a portion in front of each operator can be removed & placed at a lower level to permit of the use of a type-writer. All the operators in this office are expert type-writers, & the bulk of the business is received on that machine. Formerly the sound of the different instruments on each table was separated by means of glass partitions, & the instruments raised on small shelves, the top of the table being also cut in 4 parts so as to prevent it acting as a sounding board. This has all been done away with in the new office, the reading instruments (sounders) being placed in small boxes (resonators) elevated on an iron standard; these boxes have a curved top, & are open at the side next to the operator so that the sound is thrown out to him only, & does not become confused with that from other instruments. On the side of the resonators are brass straps for the purpose of holding received telegrams until the office boy collects them. Messages intended for transmission are hung in front of the operator on hooks supported by a brass standard; after being sent over the wire the messages are filed on a hook on the standard of the resonator, & are collected every half hour; they are then checked over carefully to see that they have been properly forwarded & sorted out in a set of pigeon holes.

The desk of the Chief Operator is placed on a raised platform beside the door, so that he

can oversee the whole of the operating room. Beside him is the cabinet containing the battery switches & motor-generators; next to this is the main switch case, which is extended up to the ceiling, forming a small room behind it, into which all the wiring of the office is concentrated. The outside wires are brought in through a window in 19 conductor cables; each conductor ends on a porcelain fuse block, to protect against any abnormal current which may be brought in the office by outside contact with electric light or power wires. These fuse blocks are connected by short wires with earth arresters, intended to intercept any heavy charge of lightning, & short cables connect the ground arresters with the main switch. By following this plan any changes made in the outside wires are straightened out by means of the short pieces between the fuse blocks & the earth arresters.

Each table is connected with a distributing board, by means of 2 cables of 7 conductors each. Underneath the tables these conductors end in a row of binding posts which are connected by short wires to the various instruments on the table. At the distributing board the conductors are arranged in rows of binding posts, one row for each table; these connections take up half of the distributing board. The other half is placed at right angles & contains similar rows of binding posts which are connected through cables with the local switch, main switch, lamp resistances, etc., etc., the terminals running in the same consecutive order at each end of all cables. Connection is made from the table cables by means of short wires bridged across the angle in the distributing board to the cables running to the switch or other desired connection. By the use of this distributing board all terminals are made permanent, & any changes that are required on the tables or switches are made by means of the short wires in the distributing board. The main switch is made specially for this office, all metal parts being separated from the wood work by non-combustible material. Connection is made from the various battery circuits, through a series of incandescent lamps placed at the top of the cabinet. The primary object of these lamps is to, electrically, lengthen out the lead to the battery, so as to avoid any chance of the same being short circuited. Incidentally the lamps are also an indication in case of 2 outside wires coming into contact with each other, or a wire becoming grounded, as they will light up if such happens within a distance of 50 or 100 miles, according to the nature of the wire. Normally the lamps do not show any light, as telegraph currents are not of sufficient quantity. Beside the main switch is the local switch, by means of which any two duplexes or single wires can be connected together in such a manner that they will work through. For instance, a duplex between Montreal & Winnipeg can be connected with a duplex between Winnipeg & Vancouver, so that the operators at Montreal & Vancouver work direct with each other. Over the local switch are a series of small lever switches which are used for the purpose of increasing or decreasing the force required on each duplex set. In the centre of the cabinet is the time transmitter, by means of which the time signals (transmitted daily from Montreal), are automatically given on all the wires radiating from Winnipeg. The usual testing instruments are placed on a cherry shelf in front of the switch.

Inside of the battery switch cabinet are placed 2 motor generators, transforming the 500 volt current down to 120 volts, for the purpose of charging the banks of main batteries. The other machine transforms the 500 volts to 7 volts, for charging the local batteries which are used for working the sounders, transmitters, etc.; these machines are practically noiseless. The face of the cabinet is provided with switches for chang-