

TELEGRAPHS & CABLES.

The C.P.R.'s Trans-continental Line.

The construction of the C.P.R. new trans-continental telegraph line between Montreal & Vancouver was commenced at Montreal April 14. The line will pass via Vaudreuil & the Short line to Ottawa, thence by the main line to the coast. It will be strung under the general superintendence of W. J. Camp, C.P.R. electrician, in 3 divisions. The 1st will reach from Montreal to Fort William, & will be constructed by J. Townsley, Supt. of Construction, with about 100 men working simultaneously in 4 gangs. The next division will reach from Fort William to Donald, B.C., & will be under B. S. Jenkins, Superintendent of Telegraph, Winnipeg, with 3 gangs, Inspector Edwards being in charge of the field work. Work on this section commenced April 25. It will be necessary to rebuild some section of the pole line between Winnipeg & Donald, which will require 2 pole gangs. The final division will reach from Donald to the coast, & will be under the charge of J. Wilson, Superintendent of Telegraph, Vancouver, who, with 2 gangs of men, will commence operations almost immediately.

A great deal of trouble has been experienced by telegraph companies through the breaking of the glass insulators by which the wires are attached to the poles. Particularly is this so in the vicinity of schoolhouses & gravel trains, & a large number have been found broken through sportsmen having taken shots at them in default of better game. A test was therefore made at McGill University, Montreal, with a view to ascertain the comparative resistency of glass & porcelain insulators, with the result that it was found that porcelain resisted much heavier & a greater number of blows than the glass. Tests were also made with a .32-calibre revolver from a distance of 8 ft. The glass flew to pieces at nearly every shot, while the porcelain frequently showed no mark, save the lead from the bullet, & when they did break it was in such a way that, had they been attached to the pole, the wires would not have been affected. Seventy-five tons of these insulators are now on their way from Europe for purposes of C.P.R. construction.

The testing of the copper wire is also going on at the Applied Science Department of McGill, under the care of Graham Drinkwater. Every day he selects at random a sample of wire from each lot of ten bundles being turned out by the manufacturers, & subjects them to tests in order to insure that they come up to the requirements of the contract. The wire must be .137 of an inch in diameter; one one-thousandth of an inch only of a variation being allowed above or below this gauge. It must be perfectly cylindrical & weigh 300 lbs. to the mile, 4 lbs. of a variation being allowed in this distance. Frequent electrical tests are made upon pieces one one-hundredth of a mile in length, to determine the purity of copper used, which must be 97%. Each bundle weighs 170 lbs., & the wire must be in one continuous length, without joint or break. Each 6 inches of wire must be capable of being twisted 30 times at a uniform speed of 1 twist a second. The tests show that it will stand 40 to 50 twists before breaking. It must stand 6 close turns around another wire of equal diameter & be unwound without breaking. It must also stand an average breaking strain of 975 lbs., & before breaking it must have stretched at least 1%.

When completed there will be a length of about 2,900 miles of wire, constituting probably the longest direct land-line circuit, for daily work, in the world. To pass across this immense distance, signals will only occupy about $\frac{1}{4}$ th of a second.

The C.P.R. Vancouver Island Cables.

As was briefly mentioned in our last issue, the C. P. R. Co.'s new cable from Vancouver City to Vancouver Island, a detailed description of which appeared in our March issue, was laid April 6, under the direction of F. B. Gerrard, Asst. Supt. of the Commercial Cable Co. at Canso, N.S.; & J. Wilson, Superintendent of the Pacific Division of the C.P.R. Telegraphs. The laying was done by the Co.'s S.S. Tartar, which brought the cable out from England in a steel tank about 35 ft. in diameter & 12 ft. in height, situated in the second hatch from the fore-castle. In the centre of the tank was a huge circular wooden frame, not unlike a mammoth spool, around which the cable was coiled. This tank was the centre of attraction all day. Fifteen perspiring, & at times, very frightened men, stood in it all day long & guided, or tried to guide, the course of the cable. The coil first passed through holes cut in 2 wooden beams on to a large iron pulley situated at the mouth of the well, & then through a pulley block in the mast almost on a level with the second deck. When the bow deck was reached it passed over 2 large guide pulleys, then on to a series of grooved wheels, which clamped together & prevented the cable paying out too rapidly. The pressure on the wheel was applied by a screw right over the stem of the vessel. So great was the friction caused by the rapid passage of the cable over these wheels, that a man was constantly employed playing water on them with a hose. Before the cable plunged into the water it fell over a final large pulley suspended from timbers projected over the bow, which made it trail down on the starboard side. The laying took about 10 hours, the actual distance being 32 miles, though 40 miles of cable were used.

The new cable starts at Little Beach on the Mainland about $1\frac{1}{4}$ miles north of Point Grey & 3 miles south of Bowen Island. Half-way across the Gulf it is resting $6\frac{1}{4}$ miles north of the old cable & at Departure Bay it is about $11\frac{1}{2}$ miles northwest. The landing place on Vancouver Island is between Jesse Island & Horsewell Bluff, about 2 miles northwest of Entrance Island, Departure Bay. With its open & easily accessible situation on both shores, the C.P.R. expects to meet with none of the old troubles. From Departure Bay, the telegraph poles will be strung along the Coal road until the E. & N. Ry. is reached, when the latter will be followed into Victoria.

The C.P.R. has chartered the tug Mystery to pick up the cable connecting Vancouver Island with the Mainland, which has recently been replaced by the new line from Vancouver City to Departure Bay, Vancouver Island. The old cable will be laid between Beecher Bay, Vancouver Island, & Port Angeles, Washington.

Rocky Mountain Telegraph Co.

This Co.'s system, comprising about 300 miles of line in Alberta & Montana, has been sold to the Postal Telegraph Co., & on May 1 the new owners took possession, the Rocky Mountain becoming a part of the Postal system. Many extensions of the plant are contemplated. The Rocky Mountain system connects with the C.P.R. telegraph system, & this deal gives the Postal new connections to the Atlantic & the Pacific coast.

The Rocky Mountain system extends from Butte, Montana, to Anaconda & Missoula, & from Anaconda to Deer Lodge, & thence across the mountains to Helena, then to Great Falls by way of Wolf Creek & Sun River. From Great Falls it extends along the Great Falls & Canada Ry. to Lethbridge, where it connects with the C.P.R. Connections are then made to Winnipeg & Montreal, & from there over the Postal lines to New York. A

new line will be built from Leadville, Colo., to Butte, Mont., thus providing another alternate route, not only for Montana business, but for points in the Northwest Territories.

Under the new order of things the Montana division will be in charge of W. P. S. Hawk, who has been manager of the now extinct Co. for some years, & it is understood that but few changes will be made in the employees.

Prompt Delivery of Messages.

C.P.R. agents & conductors have been notified by Manager Tait of the Eastern lines that too many cases of delay in delivery of commercial telegrams are occurring. Evidently some agents & operators do not understand that after train orders & similar duties in connection with the prompt movement of trains at their stations, the handling of commercial telegraph business is next in importance, & to satisfy the patrons of the Co., & by good service increase the telegraph business, the greatest possible dispatch is required. All commercial telegrams, when the duties above mentioned do not prevent, should be immediately delivered & receipt taken, which must show time. No excuse will be accepted for failure to produce such receipts when required.

There is too much uncertainty at present about the delivery of messages addressed to parties on trains. Hereafter such messages will be delivered to conductors, who will receipt to operators for all commercial messages. Due effort must be made to find parties addressed, if necessary "crying" the message in each coach of the train. If party cannot be found, message must be left at next telegraph office at which train stops, with a note on it to that effect, signed by conductor, on receipt of which operator will at once notify the sending office.

An Operator's Proxy.

R. M. Cameron, of Vancouver, B.C., tells a good story on himself as follows: "I was working as extra operator on a railroad in Georgia 'A' at 'B' and I did not 'pull' together amicably, & one day after we had had quite a 'chewing match' he declared he would thrash me the first opportunity he had. Having heard that he was a strapping big fellow, & that he had quite a reputation as a 'scrapper,' I was somewhat afraid to venture near 'B' office. Several weeks after this, a drummer visited our town who had 'written me up' for failing to deliver a message promptly to him from his firm, & who was going to 'B' that day on train No. 2. I thought now was my chance to get even. I called up 'A,' told him I was coming down on No. 2, & that we would have it out personally. I then described the drummer as accurately as possible, & told him to watch out for me. I was told afterwards that 'A' made for the drummer mumbling something about 'operator at C,' & that the poor drummer had only time to yell 'maniac.'"—Telegraph Age.

The severing of the cable between Cuba & the main land forces the Spanish to fall back on Great Britain in order to secure cable communication with Cuba. No message can go to Havana except through British territory. Cable communication exists between Cuba & the British Island of Jamaica. Within the past few months, after long agitation, a line was finally completed connecting Jamaica with Bermuda, another British possession, which in turn connects with Halifax. Previously Great Britain used to communicate with Jamaica through the U. S. & Cuba, & but for the new line would have suffered severely by the latest move. This incident will probably have the effect of hastening the construction of the all-British Pacific cable. Imperialists are urging.