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The Canadian Engineer.

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CONTENTS OF THIS NUMBER:

THE TORONTO MAGNETIC OBSERVATORY.

In the February number of THE CANADIAN ENGINEER was given a brief history of the Toronto Magnetic Observatory and of the troubles that have resulted from the erection of buildings in an all too close proximity to the Observatory, later by various city electrical installations and still more recently by the Toronto electric railway system. In an interview with the Honorable the Minister of Marine and Fisheries in February, 1897, the director of the Observatory suggested that before deciding finally on a removal of the magnetic instruments to another site and breaking one of the longest series of magnetic records outside of Europe, it would be well to invite an expression of opinion from one of the most celebrated magneticians of Europe, several of whom were to be present at the meeting of the British Association for the Advancement of Science in the following August. The Minister was pleased to approve of the suggestion and on the arrival of members of the association the director wrote to the various members of the Kew Committee of the Royal Society who were in Toronto, and also to Dr. Van Ryckevorsel, of Holland, and Professor F. H. Bigelow, of Washington, U.S., requesting the favor of their presence at the Observatory to inspect the photographic magnetic curves there obtained with the view of expressing an opinion as to the advisability of continuing the records at the present site or of removal to some point distant from electric tramways. Prof. Rucker, F.R.S., Prof. Carey Foster, F.R.S., Prof. Fitzgerald, F.R.S., Dr. Van Ryckevorsel and Prof. Frank Bigelow are the gentlemen who courteously accepted the invitation and were pleased to sign a statement that in their opinion the value of the magnetic observations at Toronto had been seriously impaired by the trolley system and advising removal to some other site. Later on, Professor Rucker, speaking at the Massey Hall, stated that Toronto's magnificent electric tramway system had ruined the Observatory. As it was feared that the public on hearing such an expression from the learned members of the association and not recognizing the difference between the Toronto Magnetic Observatory and the central office of the Dominion Meteorological Service, might imagine that a site suitable for the one would be unsuitable for the other, Professor Rucker wrote a letter to the effect that the statements made regarding the Toronto Observatory had reference to the magnetic observations only and had none whatever to the meteorological work there performed. It became evident then that the opinion held by gentlemen engaged in corresponding scientific work abroad, was quite in accord with that of the Director of the Observatory, and shortly after the close of the meeting of the B.A.A.S. he was authorized by the Government to choose and purchase a suitable site for a new magnetic observatory, and after making careful examination as to the distance that the electric currents might effect the magnets, it was decided to erect the new building near the village of Agincourt, a point about 10 miles distant from the present Observatory, easily accessible by railway, and yet very unlikely to be invaded by the trolley system.

The new Observatory, which was commenced in June and finished during the early days of September, consists of two parts, first, a circular stone cellar 19 feet in diameter, the walls two feet in thickness, the floor concrete and the roof covered with felt and gravel, in which, on stone piers sunk in concrete to a depth of six feet below the floor, are placed the self-recording photographic instruments, namely, the declinometer for recording changes in the direction of the magnetic needle, and the bifilar and vertical force instruments for registering respectively changes in the horizontal and vertical components on the earth's magnetism. Above ground and connected with the cellar by a flight of steps is an erection which is divided into two portions, in the larger of which absolute magnetic determinations will be made, piers being provided on which to place the necessary instruments, and an adjustable opening on the roof for transit work, and the smaller an office which will be heated by a copper stove. Observations were first made in the new building on September 16th, and it was hoped that by October 1st all the instruments will have been adjusted in their new position and everything running smoothly. Results already obtained have shown that values will differ but slightly from those obtained at the old Observatory, and it is proposed to make a very careful comparison before dismounting the old eye reading instruments in Toronto. Very great care has been taken in selecting material for the building, every stone used was tested for magnetic effect and none but copper or zinc nails and fastenings have been used. There appears to be every prospect that the new Observa-