

comes our duty to call the attention of intending immigrants to the country we have nearer home and with no possibility of Indian or half-breed troubles to annoy. Ontario has homes for a million more as good as the average of the North-West and more easily accessible.

#### THE CLIMATE.

Owing chiefly to its remote position and partly to its latitude Northern Ontario (Algoma and Nipissing) is commonly supposed to be a very sterile and inhospitable region. The writer, during a portion of five seasons spent in various parts of this district, has tried to obtain reliable data as to its true climate and agricultural capabilities. Briefly, the spring opens about the same time as in the county of Bruce, so far as foliage and grasses are concerned. Owing to immunity from fall frosts, crops are often sowed very late, and often every new settler has some clearing to do in spring before seeding. Hence the general impression that spring is very backward and cold. During the past summer more attention has been paid to gardening, and the results have been quite satisfactory. Tomatoes sown from seed in open air ripened early in September, while oats sown in July were safely harvested in October. The wild grape grows luxuriantly on islands in Lake Nipissing, the plum, cherry, and high bush, as well as marsh cranberry, on its shores; and the usual small fruits abound everywhere. I found the wild plum on the plateau of Archer, 1,350 feet above sea level, also in the Spanish River near Pagamasing; and it is rumoured that it extends to its source. A few patches of potatoes near swamps were touched late in June, but recovered, and did well, while

#### ALL FIELD CROPS WERE A FAIR AVERAGE,

though very poorly put in, owing to lack of teams and implements in this new region. Grass along the road was magnificent, one head of timothy shown measured 20½ inches, and blue joint on flats is frequently taller than a man. Of the adaptation of climate to successful settlement there can be no doubt, and of the fertility of the soil as little; the only question then is—Is there sufficient soil to be found to repay the search for it? The average of the country I have traversed—between Bruce Mines and Callander—would give in the vicinity of 40 p.c. of arable land, nearly all free from stone, balance solid rock. Some townships average 80 per cent., and form fair settlements, while tracts will only be fit for grazing purposes. The amount of moisture is very suitable for agricultural and grazing; the record at Sturgeon Falls, on Lake Nipissing, for the last year, being, Dec., 1883—Rain, .7; snow, 21.5. Jan., 1884—Rain, .2; snow, 9.3. Feb.—Rain, 0.3; snow, 10.5. March—Rain, 4.05; snow, 2.6. April—Rain, 4.25; snow,—. May, rain, 2.32; June, 2.08; July, 3.30; Aug. 1.07; Sept., 5.04; Oct., 3.96; snow, 2; Nov., 3.11; snow, 5.7; rainfall for the year, 30.11 inches; snow-fall, 49.8. It may be remarked that both rain and snow came very seasonably—that no trains were blocked, and scarce a day in which men could not work in the woods. With these facts in view and that the lowest temperature was —36°, the average of February being +8°, we only reasonably conclude that the region is not only habitable but salubrious.

#### A REVOLUTION IN TELEGRAPHY.

##### THE SURPRISING INVENTION THAT MAY SUPERSEDE THE TELEPHONE AND THE MORSE SYSTEM.

A new application of electrical science has been made in Philadelphia that promises to go far towards revolutionizing telegraphy and supplanting the telephone in popular favour. It is nothing less than the discovery of means by which anybody capable of manipulating an ordinary type-writing machine may, with equal ease, rapidity and precision, send and receive messages over a telegraph wire. Should this invention do all that is claimed for it, and, indeed, that it seems fully capable of, there seems to be no good reason why the places of expert Morse telegraphers may not be filled everywhere by girls, clerks, expressmen, station agents and other non-experts, so at once reducing greatly to the public the cost of telegraphy, and increasing facilities by the establishment of telegraph offices throughout the country in places where they have not heretofore been. For reasons best known to the company controlling this most important invention, its operations have until now been kept a secret. The office and operating rooms have been carefully guarded against reporters, and the men interested have been as close-mouthed as if it had been a political

mystery, instead of a step in progressive science that they were concealing.

#### THE NEW SYSTEM.

The distinguishing features of the new system—which takes its name from the inventors, Mr. George M. Hathaway and James H. Linville—are the entirely novel transmitter and receiver employed. Those two instruments, although put near together here upon a table, have between them about a hundred miles of ordinary telegraph wire coiled about the room, through which their connection is made. In point of fact, the transmitter and the receiver are exactly alike, the same machine serving for either use as required. Its front is almost the key-board of a caligraph or type writer, the letters of the alphabet and the numerals standing up on elevated keys. Back of this is a small wheel lying horizontally, upon the circumference of which the letters and numerals are in high relief. Behind this is a vertical column, around which blank paper is placed, and by a simple mechanical contrivance moved up line by line as desired. The paper almost touches the lettered face of the wheel. A small inking roller, governed by a spring, supplies colour to the lettered wheel. Inside the column is a small hammer that strikes the paper against whatever letter may be directly before it, and so prints it upon the surface of the paper. All that seems simple enough.

#### THE MYSTERY IS BELOW,

in the intricate and delicate electrical attachments by which variously graduated currents are led over the thirty-eight or forty wires from the keys to the printing apparatus, and at the same time to a connected instrument far away to record both simultaneously and with a perfect accuracy on every key that is struck. The wire connecting the instrument is single, but those graduated currents not only pass along it without confusion, but even meet and pass in opposite directions at the same time. This was fully demonstrated in to day's tests. The touching of a key instantly produced a letter upon the paper of both instruments, and letter after letter followed as rapidly as a skillful type-writer operator could touch the keys until many messages had been exchanged. It was observable that the wheel, when retrogression in the order of the alphabet was necessitated, whirled close back to a fixed point each time, as the wheel of a "gold and stock indicator" instrument does, but it moved with much greater rapidity and so little affected transmission that forty to fifty words per minute were easily sent by a person who was not at all an expert, and received automatically at the other end of the line without errors.

#### THE DISTINCTIVE ADVANTAGES

claimed by this system over all other telegraphic, telephonic and type-writing instruments are in its simple and inexpensive construction, and the ease of operating it. Any person who can read can transmit and receive messages through it as correctly as could the most experienced expert using the Morse instrument. It is as rapid as it is accurate, and all messages by it being automatically printed, both at the point of transmission and that of reception, they can be received with safety and reliability in the absence as well as in the presence of the recipient. The recording of messages at both points precludes all questions of errors in transmission. It cannot be read by sound, and is consequently the only method for preserving privacy the electrical communication. It is at once a stock indicator, telephone and type-printing telegraph. For railroads and express companies, bankers, brokers, merchants and all commercial purposes—it being adjustable to any system of wire communication and capable of working with any number of tributaries—it is of inestimable value. It is not a verbal telephone, but will supersede that instrument by silently and rapidly recording all messages upon paper. There are no formidable complications in its construction, and it is regarded by expert electricians as a wonderful achievement.—*N. Y. World.*

#### COUNTERWEIGHT AND COUNTERBALANCE.

By M. A. Beck.

On this subject you doubtless have room for one more, so I send you a copy of some brown-paper sketches made several years ago, which show the action of counterweight with more or less clearness. The notes adjoining the sketches are as made on the originals, and may be convenient for reference. Counterbalancing is a matter that can be attained with some