

registering, with great facility, by the photographic process. By placing a piece of the photographic paper behind the straws, and throwing the light of a good lens upon them, the expansion is easily depicted, and serves well for a night register. There is also a Peltier's electrometer, another form of electrometer, consisting of two gold leaves suspended to a rod of copper two feet long; the upper end being furnished with a wire box, in which is kept burning some rotten wood (touch-wood).

The *anemometer* consists of a *direction shaft* and a *velocity shaft*: to the top of the direction shaft is placed the vane, which is eighteen feet in length. The shaft is made of three pieces, to insure lightness and more easy motion; each piece is connected by means of small iron-toothed wheels. The two shafts are six feet apart, and work on cross-arms from a mast firmly fixed in the ground. The vane passes some six or eight feet above the velocity shaft, and does not in any way interfere with the other movements. The lower extremity of these shafts are all furnished with steel points, which work on an iron plate or a piece of flint, and pass through the roof of the Observatory: the openings being protected by tin parapluies fixed to the shaft, and revolving with them. Near the lower extremity is placed a toothed-wheel, eight inches in diameter, connected to another wheel of the same diameter, which carries upon its axis a wooden disc, thirteen inches in diameter, upon which is clamped a paper-register (old newspapers answer very well) washed over with whitening and flour paste. Upon the surface of this register is traced by a pencil the direction of the wind. This register is renewed every twelve hours.

The *velocity shaft* is in two pieces, connected by means of the toothed-wheels and steel pivots, as in the direction shaft; and, practically, the friction is nil. At the top of the velocity shaft are fixed three hemispherical tin or copper caps, ten inches in diameter, similar in construction to those of the Rev. Dr. Robinson, of Armagh, and are firmly rivetted to three iron arms of $\frac{1}{2}$ inch iron. These caps revolve always in the same direction, and one revolution is found to be just one-third of the linear velocity of the wind. I have no reason to doubt Dr. Robinson's formula for this calculation. At the lower extremity of the velocity shaft is fixed a one-toothed wheel, 23 inches in diameter; this moves a second, or ten-toothed wheel, which also gives movement to a third wheel. This marks a hundred revolutions of the caps, which are so calculated that each one hundred revolutions are equal to one mile linear; and whenever one hundred revolutions have been accomplished, a small lever is elevated by means of an inclined plane, fixed upon the edge of the last wheel, and which gives motion to the lever. The other extremity of the lever is furnished with a fine steel point, which dots off, upon a paper-register, the miles as they pass. This register is of paper, one and a quarter inch wide, and is removed every twelve hours.

Between the two shafts, at the lower extremities, are placed two runners of wood, *rebated*, to receive a slide or train, which carries the register. To the underside of this slide is fixed a rack, and it is moved by a pinion, the movement of which is communicated by clock,—the cord of the weight being passed over a wheel and pulley,—and advances one inch per hour, and the lever before described dots off the miles as the register advances under the steel point. In this manner it shows the increase and decrease of the velocity, and also the moment of its change. Attached to this moveable train is a rod of wood, carrying a pencil, which passes over the disc connected with the direction shaft, and there traces, as it advances, the direction of the wind, the moment of its changes, and the point from which it veered. The extreme height of the vane is forty feet, but this might be increased if required. The clock is wound up every twelve hours, which brings back the train to its starting point.

There are also a polariscope, prisms, and glasses of different colors, for experimenting on the different rays of light, in connexion with the germination of seeds, and the art of photography. The Observatory possesses a quadrant and artificial horizon, which serves for measuring the diameter of haloes, and altitudes of auroral arches, &c.; also a dial for the indication of the direction and course of the clouds; and other minor instruments.

EXPLANATION OF EXTERNAL VIEW OF THE OBSERVATORY.

- A. Thermometer for solar radiation.
- B. Screen of Venetian blinds.
- C. Thermometer.
- D. Opening in ridge of the roof, closed with shutters, to allow use of transit instruments.
- E. Rain gauge with conducting pipe through the roof.
- F. Velocity shaft of the anemometer.

- G. Mast for elevating apparatus for collecting electricity.
- H. Cord for hoisting the collecting apparatus.
- I. Copper wire for conducting the electricity into the building.
- J. Direction shaft of the anemometer.

EXPLANATION OF THE PLAN OF THE OBSERVATORY.

- A. Anemometer.
- B. Small transit for correcting time.
- C. Electrical machine for charging the Distinguisher.
- D. Peltier's electrometer.
- E. Space occupied by Dirometer, Polariscope, &c.
- F. Electrometer. G. Discharger.
- F. Distinguisher.
- G. Small stove—sometimes used in damp weather.
- G. Thermometer placed in the prismatic spectrum for investigations on light.
- H. Nigretti & Zambra's barometers and cisterns, 118 feet above the level of the sea.
- I. Small-tube barometer.
- J. Newmann's barometer.
- K. Aneroid barometer.
- L. Quadrant and artificial horizon.
- M. Microscope and apparatus for ascertaining the forms of snow crystals.
- N. Thermometer, psychrometer, &c., 4 feet high. A space is left between the two walls to insure insulation and prevent radiation.
- O. Ozonometer.
- P. Evaporator—removed in winter and replaced by scales for showing the amount of evaporation from the surface of ice.
- Q. Post sunk in the ground, and 40 feet high, to carry the arms of support for the Anemometer.
- R. Solar radiator.
- S. Venetian blinds.
- T. Iron rod beneath the surface of the ground connected with the discharger to insure safety.—*Canadian Naturalist*.

OFFICIAL NOTICES.



Proclamation.

PROVINCE OF
CANADA.

EDMUND HEAD.

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, &c., &c., &c.

To all to whom these presents shall come—Greeting:

Whereas on the Twenty-fifth day of August last, and on the First and Eighth days of September last, the Model School House, in the School Municipality of St. Thomas, in the county of Montmagny, was discovered to be on fire, and there is reason to believe that on each of the said days an attempt to destroy the said building by fire was made by some evil disposed person or persons: Now Know Ye that a Reward of One Hundred Dollars will be paid to any person or persons, who will give such information as will lead to the discovery, apprehension and conviction of the above offender or offenders.

In Testimony Whereof, We have caused these Our Letters to be under the Great Seal of Our said Province to be hereunto affixed: Witness, Our Right Trusty and Well-beloved the Right Honorable Sir Edmund Walker Head, Baronet, one of Our Most Honorable Privy Council, Governor General of British North America, and Captain General and Governor in Chief in and over Our Provinces of Canada, Nova Scotia, New Brunswick and the Island of Prince Edward, and Vice Admiral of the same, &c., &c., &c. At Our Government House, in Our City of Toronto, in Our said Province of Canada, this Fifth day of November, in the year of Our Lord, one thousand eight hundred and fifty-eight, and in the Twenty-second year of Our Reign.

By Command,

CHARLES ALLEN,
Secretary.

ERECTION OF SCHOOL MUNICIPALITIES.

His Excellency, the Governor General has been pleased to annex to the Municipality of St. Paul in the county of Joliette, (for school purposes) the lands belonging to Aimé Teller dit Lafortune, Toussaint Laporte, Médard Gauthier dit Landreville, and Venant Piché, which, by an