

spring and summer months as is customary. It may also be stated in this connection that observations are being made by Prof. Penhallow on root penetration and the movement of sap in trees, in order to complete the necessary data. These will be published as soon as circumstances will permit.

This work, which, it is expected, will be carried on continuously for some years, is conducted under the auspices of the Natural History Society of Montreal. The expense attending the construction of the necessary instruments was met by a grant from the Elizabeth Thompson Science Fund. Reference may be made to the Annual Reports of the Observatory for further information concerning the inauguration of this work. The following is a brief description of the instrument used:—Couples of copper and iron are placed in the ground at the required depths. A wire passes from each couple to a switch-board in the observing room, and there is a return wire common to all the couples, which—in the observing room—passes through a delicate galvanometer and a couple similar to those in the ground to make connection with the other wires at the switch-board. The galvanometer is made to read zero on the circle when the circuit is open. If now the circuit be closed at the switch-board the needle will be found to deflect, but may be brought back by bringing the inside couple to the same temperature as that in the ground. For this purpose the inside couple is immersed in water, or in winter, in a mixture of snow and water. When the balance is established the temperature of the water is the same as that of the ground at the depth of the outside couple.

In this, the first report upon the work, it is proposed simply to place on record the results thus far obtained, leaving to the future such deductions as it may be possible to draw. The temperatures in degrees centigrade—as given—are averages of ten-day periods, while the figures for snow and rainfall express the total precipitation for the same periods.

The soil terminals of the thermometer are located at a distance of about fifty feet from the air terminal, and about twenty feet from the observatory. The depths thus far operated upon are one, two, three and four feet from the surface, a limitation imposed by the formation of the locality, which is at present the only one available within working limits of the instrument.

The soil in which the instrument is placed is a well-drained and rather gravelly loam for a depth of four feet three inches, at which point the bed rock is reached. It will, therefore, be observed that the lowest point of observation is only about three inches from the rock. Grass has been allowed to grow freely about the instrument, though kept rather short, thus establishing the conditions of land in sod.