## TEMPERATURE AND TIME-MACGREGOR.

## ART. V. — ON THE MEASUREMENT OF TEMPERATURE AND TIME — By PROF. J. G. MACGREGOR, D. SC. (Read March 8, 1887.)

## (Abstract.)

THE object of this paper was to point out the analogy between the so-called measurement of time and of temperature.

The time of the occurrence of any event may be described by the aid of any series of recurring events. The daily passage across the meridian of the first point of Aries may be chosen, for example. In that case the time of the occurrence of an event is described as between the *n*th and (n+1)th transits of this point. To make the description more definite we may use a rapidly oscillating pendulum and describe the event as occurring between the *m*th and the (m+1)th oscillations of the pendulum after the *n*th transit of the first point of Aries. By thus selecting a series of events occurring with sufficient frequency it is possible to give our descriptions of instants of time as great precision as may be desirable.

It is consequently possible to record the magnitudes of variable quantities (e. g. distances, angles, etc.,) at definite instants, and therefore to compare the changes which the positions of bodies may have undergone in any required interval of time.

To facilitate the comparison of the contemporaneous changes of position or motions of bodies among one another, the motion of some one body is chosen as a standard, and all other motions are compared with it. It is obviously desirable that the moving body chosen as a standard of reference should so move that as many as possible of the laws of the motions of other bodies, when expressed in terms of its motion, should be (1) simple and (2) permanent, i. e., independent of the date of their determination. The selection of such a moving body is rendered possible by the records of astronomers, which extend over more than 2000 years. Their observations shew that if the motions of

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