

was greater, or about 3·5, while the probable error was about the same. By using a telescope with a cross view, as he appears to have done lately, he has considerably reduced both quantities. But each person should determine the amount of retardation for himself, as depending upon his distance from the hill, peculiarity of observation, and other such causes. This done, and the quantity applied to one of the rises as a correction, will give a very near approximation to the error of the observer's watch, so that he will be fully prepared to observe the instant of the *drop* to the utmost exactness.

8. Has the accuracy of the drop of the ball been independently tested?

As to absolute time, not that I am aware of; but as to relative time, it has by the two very careful series of observations already mentioned, by Sir T. M. Brisbane and Mr Swan. The results of these are given below in the rates of their chronometers, for similar days. And it will be observed, that although one of them did alter its rate somewhat irregularly backwards and forwards, still as the other was going on in a uniform march at the selfsame time, the anomalous effect was all owing to the one chronometer, and nothing sensible was due to any error of the time-ball.

In conclusion, the author observed that the arrangements which were in the course of being made, would give uninterrupted facility to the public for ascending to the top of the monument.

3. On a Black Tertiary Deposit, containing the Exuviae of Diatomes, from Glen Shira. By Dr Gregory.
4. Additional Note to a Paper on the Structure of Coal, and the Torbanehill Mineral. By Dr Bennett.
5. On the Mechanical Energies of the Solar System. By Professor William Thomson.

In this paper it is shown, that by the sun's heat there is an emission of mechanical energy from the solar system, amounting in about 100 years to as much as the whole energy of the motions of all the planets. The principal object of the paper is to investigate the source from which this vast development of energy is drawn. It is argued, that either a store of primitive heat must be drawn upon,