

great care must be exercised with photographic plates, for which reason they are kept in tin boxes, water and air-tight.

During the past season about seven hundred photo-topographic plates were obtained, covering an area of nearly five thousand square miles ; besides nearly a hundred 8 x 10 plates, making a collection of photographs showing glaciers, glaciation, and glacial action of the greatest interest and value.

I will dwell for a moment upon climate, with special reference to an ice age or glacial period. The absolute amount of heat received annually from the sun is not known, nor the fluctuations in the emanations from the sun, nor his rate of cooling ; all of which affect both the meteorological and climatic conditions upon the earth. However, certain it is, that astronomical conditions, periodic in their function, must produce some effect on climate. Climate, and its offspring, meteorology, are complex subjects. They are the effects or phenomena of various causes interlinked and interwoven to such a degree that up to the present time their true history has not been written. We know that summer and winter are due to the obliquity of the axis of the earth to the plane of its orbit. By summer we understand the time from the vernal to the autumnal equinox, and winter from the autumnal to the vernal. The proportion of heat received in summer is to that received in winter as 63 is to 37 ; and this is practically constant for all time ; for the obliquity changes but very little.

If there were no other changes in the relative position of the earth towards the sun, there would be no change of climate further than that indicated above ; but, as a matter of fact, the earth, revolving in an elliptic orbit around the sun, does not preserve the same orbit through all times, that is, the eccentricity changes. Furthermore the line of equinoxes passes around the ecliptic, and this, combined with the change of eccentricity of the earth's orbit, produces a change in the climate by changing the lengths of summer and winter.

For instance, at present our summers are seven days longer than our winters, there being 186 days between the vernal and autumnal equinoxes, and 179 between the autumnal and the vernal. The time required for the line of equinoxes to make a complete revolution is, in