

to say, the northern hemisphere enjoys its spring and summer, while the southern hemisphere passes through autumn and winter.

“ 2. When the earth approaches nearest to the sun, our hemisphere has its autumn and winter ; and the regions near the pole, receiving none of the solar rays, are plunged into darkness, approaching that of night, during six months of the year.

“ 3. When the earth is most distant from the sun, when much the greater half of the ecliptic intervenes between it and the focus of light and heat, the pole, being then turned towards this focus, constantly receives its rays, and the rest of the northern hemisphere enjoys its long days of spring and summer.

“ Bearing in mind that, in going from the equinox of spring to the autumnal equinox of our hemisphere, the earth traverses a much longer curve than it does on its return ; bearing in mind, also, the accelerated movement it experiences in its approach to the sun from the attraction, which increases in inverse proportion to the square of its distance, we arrive at the conclusion that our summer should be longer and our winter shorter than the summer and winter of our antipodes ; and this is *actually* the case by about eight days.

“ I say *actually*, because, if we now look at the effects of the precession of the equinoxes, we shall see that in a time equal to half of the *grand year*, whether it be 12,900 or 10,500 years, the conditions will be reversed ; the terrestrial axis, and consequently the poles, will have accomplished the half of their bi-conical revolution round the centre of the earth. It will then be the northern hemisphere which will have the summers shorter and the winters longer, and the southern hemisphere exactly the reverse. In the year 1248 before the Christian era, according to M. Adhémar, the north pole attained its maximum summer duration. Since then—that is to say for the last 3,112 years—it has begun to decrease, and this will continue to the year 7388 of our era before it attains its maximum winter duration.

“ But the reader may ask, fatigued perhaps by these abstract considerations, What is there here in common with the deluges ?

“ The *grand year* is here divided, for each hemisphere, into two great seasons, which De Jouvencel calls the great summer and winter, which will each, according to M. Adhémar, be 10,500 years.

“ During the whole of this period one of the poles has constantly had shorter winters and longer summers than the other. It follows that the pole which experiences the long winter undergoes a gradual and continuous cooling, in consequence of which the quantities of ice and snow, which melt during the summer, are more than compen-