fractions of its amount in equal times. Thus the poles would eventually appear to meet, unless separated from time to time by the action of causes changing one or both of them.

Since the position of the pole of figure of the Earth may be supposed to have been originally determined by the rotation itself, and continually to approach the pole of rotation if it were very slightly separated from it, the presumption would appear to be that the two poles would now be in apparent coincidence, in the absence of disturbing causes. Moreover, the evidence of the most accurate observations hitherto made with Prime Vertical Transits seems to show that the separation of the two poles at the epochs 1842 and 1864 could scarcely have exceeded the tenth of a second. But observations made with probably equal exactness at the present time seem to show, according to Mr. Chandler, a separation of $0''\cdot3$. It would seem, therefore, accepting these provisional numerical results, that some disturbing cause has acted. A *vera causa* was pointed out some years ago by Sir William Thomson, in the motions of the winds and oceans, and especially in changes in the polar ice-cap. In order to have its greatest effect such a movement of matter must occur in the middle latitudes; a change in the polar ice-cap would be the less appreciable in its effect the nearer it occurred to the pole. A heavy snow-fall over the whole of Northern Asia, unaccompanied by a corresponding fall on the American continent, would undoubtedly cause a slight displacement; but I doubt whether the greatest effect of this kind could amount to $0''\cdot05$.

But we have also to consider the effect of an annually repeated disturbance of this kind. Mr. Chandler's period is such that the pole of rotation makes six revolutions in seven years. Hence, during one-half the period of seven years, the effect of an annually repeated cause will be cumulative. In a recent volume of the *Bulletin Astronomique*, Mr. Radan has investigated the effect of an annual periodic change in the position of the Earth's axis of figure, and shown that it will be multiplied three times, in consequence of this cumulative effect. But his analysis rests on the hypothesis of a 306-day period. It is worth while to show how such an annual cause would act when we adopt Mr. Chandler's period.