The following is a list of the corrections we have so far deduced to Hansen's tables. They should in strictness be applied to the mean longitude, or "Argument fondamental", but they may without serious error be applied to the true longitude.

Put

- D, the argument of parallactic inequality, or mean elongation of the moon from the sun :
- g, the moon's mean anomaly;

g', the sun's mean anomaly;

a, the distance of the moon's perigee from the ascending node;

 ω' , the distance of the sun's perigee from the same node.

We then have

$$D = g - g' + \omega - \omega',$$

and the corrections in question are,

+ 0.96 sin D+ 0.07 sin (D-g)- 0.13 sin (D+g')+ 0.09 sin g' Annual equation. - 0.33 sin 2D Variation. - 0.10 sin (2D-g) Exertion. - 0.62 sin $(g2-4g'+2\omega-4\omega')$ Accidental error.

The fourth and fifth terms of this expression have the effect to remove the increase which Hansen applied to his inequalities on account of the position of the center of gravity of the moon, while the sixth is the result of the slight error of the eccentricity which he employed in computing the coefficient of evection.

In comparing with meridian observations which have been reduced without any correction to the apparent semi-diameter depending on the time of day, the correction of variation may also be omitted, since a yet larger apparent correction, having the opposite algebraic sign, will result from the apparent variations of that semi-diameter, as already explained.

As regards the possible corrections to the elements of Hausen's tables, it is to be remarked that that investigator did not avail binself of the elements of the lunar orbit deduced by Airy from the Greenwich observations between 1750 and 1830, but obtained his final values of the elements by a comparison of his own. Of the nature and extent of the observations thus employed, we have no details; but it is not likely that more than a very small fraction of the entire mass of observations was used, and it can therefore hardly be expected that the elements were determined with the last degree of accuracy. Any error in the motion of the perigee or node will constantly increase with the time. If, in addition to this, we reflect that the meridian observations of the last twenty years are far more accurate than those Hansen had at his disposal, it will not seem at all surprising to find quite sensible errors in the present longitudes of the lunar perigee and node as derived by Hansen. Our next step will therefore be to determine

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