itself, which was easily discernible in the 26-in. reflector, was, as in former years, displaced slightly toward the f Shoulder, and the accelerated rate of velocity of the f Shoulder appeared finally to render this shoulder in contact with the spot.

A number of white spots in the central rift of the S. Equatorial Belt exhibited a rotation period not dissimilar to that of the Red Spot. This remark applies equally to the white spots of the S. Tropical Zone, except in the instance of those following the S. Tropical Disturbance, where a motion more in conformity with that of the Disturbance was manifested.

The spots along the S. edge of the N. Equatorial Belt exhibited a marked acceleration of velocity, while the corresponding ones along the N. edge of the S. Equatorial Belt moved at the normal rate of $9^h50^m27.8^s$. The difference between the two currents works out at $2.9$ seconds.

The spot charts show the inconsistency of the rates of motion of the individual spots in nearly all latitudes, the longitudinal drift even of the Red Spot never for any considerable period remaining constant.

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The Illumination of the Field of a Photographic Objective
(Supplemental Note). By H. C. Lord.

In a paper published in the Monthly Notices, vol. lxxvi. p. 197, there were developed certain formulæ which give, for points in the field at an angular distance $\phi$ from the centre, the intensity of illumination, $I$, in terms of that at the centre taken as unity. In the development of these formulæ it was tacitly assumed that there was no interference with the emergent cone of rays by the back combination of the objective. In other words, it was assumed that all the light came out of the objective that was admitted by the front combination. Such, however, is only the case for a comparatively small field, but the formulæ already developed can be readily adapted to include this additional loss.

For central refraction, $\phi = 0$, it is evident that the radius, $r$, of the illuminated circle formed on a plane tangent to the vertex of the last lens of the combination by the emergent cone of rays, is given by

$$r = \frac{u_2u_3u_4 \cdots \cdots u_n}{v_1v_2v_3 \cdots \cdots v_n - 1} \left( \frac{F}{2N} \right)$$

where $u$ denotes the distance from any element to the point where the rays from the preceding element come to focus, and $v$ denotes the distance of this same point from the preceding element. The term "element" is here used as defined by Taylor in his System of Applied Optics. In case the constants of the system are not known, the value of $r$ can obviously be
determined experimentally. If \( D' \) be the distance of the emergent pupil point from the back vertex of the objective, and \( 2R_\alpha \) be the aperture of the last lens, the value of \( \phi \) for which the back combination just begins to interfere with the emergent cone of rays will be given by

\[
\tan \phi = \frac{R_\alpha - r}{D'}
\]

So long as \( \phi \) is less than the above value of \( \phi \), no account of the effect of the rear combination need be taken. For values larger than this the formula developed in the paper above referred to should be applied as follows. Compute the intensity of the light transmitted by the front combination exactly as if there were no back combination, but omit the factor \( \cos \phi \) and call the result \( I_1 \). Then compute the intensity due to the effect of the back combination alone by the formulae of the second case considered in the preceding paper, omitting the factor \( \cos \phi \), replacing \( \frac{F}{2N} \) by \( r \) as computed above, and replacing \( D' \) by \( D' \), and call the result \( I_2 \). The intensity of the image given by the complete objective will then be given by

\[
I = (I_1 + I_2 - r) \cos \phi
\]

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