104. On the Corpuscular Eclipse of Sept. 21st, 1941.

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Neutral corpuscles emitted from the sun ionize the layer of the lower ionosphere (at a height of about 100 km.) surrounding the earth. This ionosphere seems responsible to the variation of the earth-current or the earth's magnetic field. The writer has executed the computation of the corpuscular eclipse in a solar eclipse of Sept. 21st, 1941.

On the computation all the physical contemplation were neglected, that is to say: the neutral corpuscle is free from the influence of the magnetic field of the earth owing to its neutrality, again the effect of the gravitational deflection of the corpuscle by the earth is neglected.

According to Milne and Chapman the effective area which emits the corpuscles has an apparent diameter about one-fourth of that of the actual solar disc. Moreover the calculation has been executed on the assumption that the speed of the corpuscles is 1600 km. a second. As a result of this assumption a large influence of the aberration of the sun is introduced. The method of computation hitherto given is based on the consideration of the corpuscular aberration of the sun and the moon to the earth. The writer's method of computation is based on the consideration of the corpuscular aberration of the sun to the moon, together with the relative motion of the corpuscular shadow and the earth, instead of considering the moon's planetary aberration.

The writer has ascertained that these two methods of computation gave nearly the same numerical result. The writer's method will be given in detail in the Science Report of Tohoku Imperial University in near future. The map shows the track of the corpuscular eclipse under the following conditions: the sun's semidiameter at its mean distance is $3' 59''.91$, the eclipse on the ellipsoid surrounding the earth at a height of 100 km. is considered, and the corpuscular velocity is assumed as 1600 km/sec, and the other condition is the same as the ordinary light.

The principal cities which are in the total zone are the following: Hankow, Nanking, Shanghai, Peking, Fengtien and Tokyo.

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