miles. This would make its mean speed 2.59 miles per second. Professor Chant in his first paper on the meteors (Journ. R. A. S., Canada 1913, 7, 159) estimates the speed in Ontario at between 5 and 10 miles. In his third paper, p. 447, he reduces his limits to between 6 and 6.5 miles. Mr. Denning on p. 441 estimates it at 8 miles, and Mr. Davidson, p. 441, at 5.15. The theoretical speed for a circular orbit around the earth at a height of 35 miles is 4.89 miles per second.

It would therefore seem at first sight as if a mean speed of 2.59 miles per second was impossibly slow. It would be so for a continuous orbit, but this orbit was not continuous, since the meteors struck the surface of the sea at a distance of about 700 miles southeast of the Newlands. In fact they had reached the Bellusia, which appears to have been near the location of their apogee, when they were 45 miles above the sea. They seem to have followed pretty closely an elliptical orbit, with but little deviation caused by atmospheric resistance. Their apogee was nearly opposite the sun, and their perigee, had they ever reached it, would have been at a distance of 3522 miles from the center of the earth; eccentricity of orbit 0.064.

These results are readily obtained by means of the well known formulae $\mu = g\,s^2$ and $v^2 = 2\mu(1/r - 1/s)$, whence $r = 2s\mu/(s\,v^2 + 2\mu)$, where g is the force of gravity, v the velocity, and s the distance at apogee, while r is the distance at perigee. The Bellusia station, which the meteors crossed when nearest that ship, is 36°.79 from the Ontario station, and 26°.49 from that of the Newlands. Since the meteors were retarded chiefly towards the end of their course, we have taken the speed at the Bellusia as identical with the mean speed 2.59 miles per second.

In order to check these results we have computed the height that the meteors should have had, in following this orbit, when they passed the Newlands. The result comes out 17.6 miles. The observed height from that ship, as we have already seen in our first paper, Table I, was 14 miles. The atmospheric resistance would reduce the computed height somewhat, and the observed angular height may not be quite correct, so that the size of the deviation after a course of nearly 2000 miles may be considered as satisfactory, and the evidence good in favor of the computed orbit and adopted speed.

In our next paper we shall bring forward some corroborative evidence regarding the speed, which came to light after the present article was practically finished. We shall discuss also the size of the meteors, and their resemblance to certain other displays, accounts of which have been handed down to us from the past.

Mandeville, Jamaica, B. W. I., Nov. 9, 1922.