short; indeed, a great many appeared as if they were coming directly at the observer. But still a great many extended long lengths, some to the south, more to the east, but the most by far towards the north. Of the two large ones before referred to, one passed southwards, the other in a direction north-eastwards.

For the purpose of further investigation, I turned the 10-inch reflector on to a point near γ *Andromedæ*, a friend continuing the counting meanwhile, and I was lucky enough to see a small meteor cross the field in a few moments. Its passage appeared extremely rapid. Its colour was bluish-white rather than yellow, and it left not a vestige of a tail or a solitary spark.

The comparison of the shower this year and of that in 1872 may be said to be as follows:—

The meteors are much the same in size; if anything a trifle smaller.

The absence of tails of any great length in either years. The colours exhibited nearly similar.

Neither in this year nor in 1872 did the meteors extend to any great lengths of arc.

The numbers counted about the same, and the shower, comparatively speaking, over by 10.30, or thereabouts.

The radiant point seemed to extend itself towards *Cassiopeia* and *Perseus* as the evening wore on.

Ivy House, Clapham Common, S.W.:

1885, Dec. 10.

Addition to the Ephemeris for Physical Observations of Mars, 1886.

By A. Marth.

The Zero-Meridian, adopted in the ephemeris on p. 29 ff. will pass the centre of the disc of *Mars* at the following Greenwich Mean Times:—

1886	h	m	1886	h	m	1886	h	m
Jan. 7	2	30.8	Jan. 19	10	5.9	Jan. 31	17	33.6
8	3	9.0	20	10	43.5	Feb. 1	18	10.5
9	3	47.1	21	11	21.1	2	18	47.3
10	4	25.2	22	11	58.6	3	19	24.1
11	5	3.2	23	12	36.1	4	20	0.8
12	5	41.2	24	13	13.5	5	20	37.5
13	6	19.2	25	13	50.8	6	21	14.1
14	6	57.1	26	14	28.1	7	21	50.7
15	7	35.0	27	15	5.3	8	22	27.2
16	8	12.8	28	15	42.4	9	23	3.6
17	8	50.6	29	16	19.5	10	23	40.0
18	9	28.3	30	16	56.6	12	0	16.4

1886	h m	1886	h m	1886	h m
Feb. 13	0 52.7	Mar. 27	1 21.1	May 8	2 54.6
14	1 28.9	28	1 57.3	9	3 33.1
15	2 5.0	29	2 33.6	10	4 11.6
16	2 41.1	30	3 10.0	11	4 50.2
17	3 17.2	31	3 46.4	12	5 28.8
18	3 53.2	Apr. 1	4 22.9	13	6 7.4
19	4 29.2	2	4 59.4	14	6 46.1
20	5 5.1	3	5 36.0	15	7 24.8
21	5 41.0	4	6 12.7	16	8 3.6
22	6 16.8	5	6 49.4	17	8 42.4
23	6 52.6	6	7 26.2	18	9 21.2
24	7 28.4	7	8 3.0	19	10 0.1
25	8 4.2	8	8 39.9	20	10 39.0
26	8 39.9	9	9 16.9	21	11 17.9
27	9 15.6	10	9 53.9	22	11 56.9
28	9 51.2	11	10 31.0	23	12 35.9
Mar. 1	10 26.8	12	11 8.1	24	13 14.9
2	11 2.4	13	11 45.3	25	13 54.0
3	11 38.0	14	12 22.6	26	14 33.1
4	12 13.6	15	12 59.9	27	15 12.2
5	12 49.2	16	13 37.3	28	15 51.3
6	13 24.8	17	14 14.8	29	16 30.5
7	14 0.4	18	14 52.3	30	17 9.7
8	14 36.0	19	15 29.9	31	17 48.9
9	15 11.6	20	16 7.5	June 1	18 28.2
10	15 47.2	21	16 45.2	2	19 7.5
11	16 22.8	22	17 22.9	3	19 46.8
12	16 58.5	23	18 0.6	4	20 26.1
13	17 34.2	24	18 38.4	5	21 5.5
14	18 9.9	25	19 16.3	6	21 44.9
15	18 45.6	26	19 54.2	7	22 24.3
16	19 21.3	27	20 32.2	8	23 3.7
17	19 57.1	28	21 10.2	9	23 43.2
18	20 32.9	29	21 48.3	11	0 22.7
19	21 8.8	30	22 26.5	12	1 2.2
20	21 44.7	May 1	23 4.7	13	1 41.7
21	22 20.6	2	23 42.9	14	2 21.3
22	22 56.6	4	0 31.1	15	3 0.9
23	23 32.7	5	0 59.4	16	3 40.5
25	0 8.8	6	1 37.8	17	4 20.1
26	0 44.9	7	2 16.2	18	4 59.8

1886	h	m	1886	h	m	1886	h	m
June 19	5	40.4	June 23	8	18.2	June 27	10	57.3
20	6	19.1	24	8	57.9	28	11	37.1
21	6	58.8	25	9	37.7	29	12	16.9
22	7	38.5	26	10	17.5	30	12	56.8

Ephemeris of the Satellites of Uranus, 1886. By A. Marth.

P, angle of position of the minor axes of the apparent orbits.

a, b, major and minor semi-axes of the apparent orbits.

u-U, longitudes of the satellites in their orbits, reckoned from the points which are in superior conjunction with the planet or in opposition to the Earth.

U + 180°, planetocentric longitude of the Earth reckoned in the assumed plane of the orbits from the ascending node on the celestial equator.

B, planetocentric latitude of the Earth above the plane of the orbits, the ascending node N and inclination J to the equator of 1880.0 are assumed to have the values

$$N = 165^{\circ}.770,$$

$$J = 75^{\circ}.210.$$

		<i>Ariel.</i>				<i>Umbriel.</i>			
Greenwich Noon	P	a ₁	b ₁	u ₁ -U	Diff.	a ₂	b ₂	u ₂ -U	Diff.
1886									
Jan. 13	284°96	14"67 + "	5"35	50°41	1428°47	20"43 + "	7"46	161°93	868°75
23	284°97	14°80	5°39	38°88	45	20°62	7°50	310°68	73
Feb. 2	284°99	14°92	5°40	27°33	42	20°79	7°52	99°41	72
12	285°01	15°03	5°38	15°75	39	20°94	7°49	248°13	69
22	04	15°12	5°34	4°14	36	21°07	7°44	36°82	67
Mar. 4	07	15°19	5°27	352°50	34	21°17	7°35	185°49	65
14	11	15°24	5°19	340°84	31	21°23	7°23	334°14	63
24	285°14	15°26 + 5°09	329°15	29	21°26 + 7°09	122°47	62		
April 3	17	15°26	4°98	317°44	26	21°25	6°94	271°39	61
13	20	15°22	4°87	305°70	25	21°21	6°78	60°00	60
23	22	15°17	4°75	293°95	23	21°13	6°62	208°60	60
May 3	24	15°09	4°64	282°18	23	21°02	6°47	357°20	60
13	26	14°99	4°55	270°41	22	20°88	6°33	145°80	60
23	27	14°88	4°46	258°63	22	20°72	6°22	294°40	60
June 2	285°27	14°75 + 4°40	246°85	1428°22	20°55 + 6°13	83°00	868°60		