

A. 108. BD. $-8^{\circ}51'03''$. 8.1, 8.5.				
RA. = $19^{\text{h}}41^{\text{m}}43^{\text{s}}$ Decl. = $-8^{\circ}24'$.				
1900.516	186.2	0.30	3	36
.557	185.2	0.28	3	36
.592	177.6	0.23	3	36
1900.56	183.0	0.27		

Lick Observatory, University of California, 1900 Aug. 4.

A. 109. AG. Bonn 17827. 9.3, 9.8.				
RA. = $23^{\text{h}}24^{\text{m}}15^{\text{s}}$ Decl. = $+42^{\circ}51'$.				
1900.530	312.6	0.68	3	12
.546	312.2	0.68	3	12
.576	316.7	0.74	4	36
1900.55	313.8	0.70		

R. G. Aitken.

The meteors of July and August 1900.

By W. F. Denning.

Between July 15 and 30 I observed 177 meteors in $17\frac{1}{4}$ hours of watching. Between Aug. 15 and 26 116 meteors were observed in 15 hours of watching. The chief nights of observation were July 24 (44 meteors), July 30 (57 meteors), Aug. 22 (37 meteors), and Aug. 24 (21 meteors). Near the time of the Perseid maximum I made no observations the moon being very bright. The following radiant points were determined:

1900	α	δ	Meteors	No. in Gen. Catalog. ¹⁾
July 15-30	$24^{\circ}+43^{\circ}$	7	swift streaks	21
"	$291+59$	6	rather slow	224
"	$291+52$	8	slow	229
"	$305-12$	8	slow. Long paths	237
"	$316+48$	9	slow	245
"	$335+73$	5	swift	254
"	$338-10$	24	slow. Long paths	263
July 30	$31+54$	10	sw. strks. Perseids	40
Aug. 15-26	$291+59$	5	slow	224

1900	α	δ	Meteors	No. in Gen. Catalogue
Aug. 15-26	$312^{\circ}+59^{\circ}$	5	slow	246
"	$333+28$	11	rather slow	259
"	$335+71$	7	rather slow	254
"	$346+1$	12	rather swift	268
"	$356+60$	5	swift	278
Aug. 16	$54+58$	5	sw. strks. Perseids	40
Aug. 22	$59+59$	5	sw. strks. Perseids	40

The first Perseid was seen on July 18, the last on Aug. 24. A bright Perseid recorded at Bristol on July 19 at $11^{\text{h}}49^{\text{m}}$ was also seen by Prof. Herschel at Slough and the radiant from the combined observations was at $17^{\circ}+50^{\circ}$ and the height of the object 81 to 54 miles. Another fine Perseid was seen on July 23 $12^{\text{h}}12^{\text{m}}$ at Bristol and also by Prof. Herschel at Slough and Mr. Besley at London. The radiant was at $24^{\circ}+52^{\circ}$ and the heights 84 to 55 miles.

The following are the most interesting meteors observed at Bristol:

1900	Gr. M. T.	Mag.	From	To	Path	Notes	Radiant
July 15*	$10^{\text{h}}12^{\text{m}}$	>1	$83^{\circ}+53\frac{1}{2}^{\circ}$	$97^{\circ}+43^{\circ}$	14°	very slow	$297^{\circ}-11^{\circ}$
19*	11 49	24	$344+33$	$329+18$	20	swift streak	$17+50$
22	11 15	2	$13+55$	$356+59\frac{3}{4}$	10	slow streak	$23+51$
23*	11 13	2	$347+48$	$326+41\frac{1}{2}$	16	swift streak	$30+47$
23*	12 12	2	$4+19\frac{1}{2}$	$2+13\frac{1}{2}$	6	swift streak	$24+52$
23*	13 0	2	$6+5$	$350+4\frac{1}{4}$	16	swift streak	$54+9$
24*	10 49	24	$6+21$	$22+25$	15	very slow	$280-15$
24	12 18	4	$23+43$	stationary	—	streak 5 ^a	$23+43$
24	13 45	2	$341+56$	$152+83$	40	swift	$338-10$
24	14 7	2	$41+40$	$48+34$	8	slow streak	$24+52$
25*	11 10	3	$21+36$	$27+34$	5	swift streak	$8+39$
25	11 56	2	$306+73$	$320+63$	11	slow train	$189+72$
25	12 6	4	$16+66$	$12+70\frac{1}{2}$	5	swift streak	$24+52$
28*	11 46	1	$135+68$	$143+54$	14	slowish?	$338-10$
28	12 25	24	$334-7$	$340-16$	10	swift?	—
28*	12 36	3	$356+47\frac{1}{2}$	$339+65$	$19\frac{1}{2}$	swift streak	$14-5$
30	11 26	2	$345-11$	$348-11\frac{1}{2}$	3	slow	$338-10$
30	11 35	1	$64+65$	$76+66$	5	swift	$53+63$
30	13 38	1	$347+35$	$336+21$	17	swift streak	$31+54$
30	14 1	1	$11+53$	$25+45\frac{1}{2}$	12	slow train	$256+24$
30	14 18	>1	$6+23\frac{1}{2}$	$1+13$	11	v. swift streak	$31+54$
Aug. 17	11 21	2	$59+47$	stationary	—		$59+47$
18	12 25	24	$357\frac{1}{2}+15$	$3\frac{1}{2}+22$	9	v. slow train	$346+1$

¹⁾ Memoirs of the Royal Astronomical Society, volume 53.

1900	Gr. M. T.	Mag.	From		To		Path	Notes	Radiant	
			α	δ	α	δ			α	δ
Aug. 19*	10 ^h 36 ^m	> ♀	—		198° ¹⁾ + 26°		—	slow	346°	+ 1°
22*	10 7	2	45° + 51°		51 ¹ / ₂ + 46 ¹ / ₂		6°	slow train	310	+ 53
22	10 46	2	87 + 88		99 + 68		21	v. slow train	280	— 13
22	11 39	2	344 ¹ / ₂ + 5		343 + 9		4	v. slow	346	+ 1
22	12 8	2	28 + 72 ¹ / ₂		8 + 72		6	swift streak	70	+ 64
22	13 3	3	12 + 56		50 + 51 ¹ / ₂		22	slow train	280	— 13
24	9 26	2	25 + 51		10 + 42		13	swift streak	61	+ 59
24	9 27	5	16 + 62 ¹ / ₂		10 ¹ / ₂ + 45		18	slow	177	+ 49
24	9 43	1 ¹ / ₂	8 ¹ / ₂ + 47		16 + 31		17	v. slow	335	+ 71
24	9 52	1	20 + 29 ¹ / ₂		24 + 25 ¹ / ₂		5	swift	8	+ 39
24	10 46	1	335 + 43		335 + 52		9	swift	333	+ 28
24	10 56	2	42 + 67		304 + 61 ¹ / ₂		38	swift streak	74	+ 41
24	12 3	1	332 + 44 ¹ / ₂		348 + 48 ¹ / ₄		11	v. slow train	306	+ 31
26	10 43	2	359 + 28		354 + 52		24	v. slow	3	— 15
26	11 32	1	348 + 42 ¹ / ₂		1 + 28		18	swift	312	+ 59

Those marked * were also observed at other stations in England and their real paths computed so that the radiant points attributed to them can be relied upon.

Though the moon interfered with observations between Aug. 5 and 15, the results obtained by various astronomers in this country were very satisfactory and a large number of meteors were recorded. The motion of the Perseid radiant was strikingly exhibited and independently noticed by several of the observers. Altogether the shower lasted more than five weeks and its radiant advanced from about 17° + 50°

to 59° + 59°. The contemporary shower of Aquarids to which the writer drew special attention in 1878 as a very rich display for the epoch July 25–30, was actively visible in July and 24 of its meteors were recorded at Bristol. No sign of it was detected however during the last half of August. At the latter period the best shower was near the equator at 346° + 1°. This radiant supplied some very brilliant meteors and it represents a well known radiant which has been frequently observed in previous years.

Bishopston, Bristol, 1900 Aug. 28.

W. F. Denning.

¹⁾ The beginning of this fireball was not seen but during its descent it gave several flashes of great brilliancy and the observer was led to turn round when he witnessed the final disruption of the object.

Meteoric shower between Aquila and Capricornus.

As an instance of repetition in the radiant of a meteoric shower I may mention that of No. CCXVIII in my General catalogue of radiants (Memoirs of the R. A. S. vol. 53). In that list, p. 221, I give the mean position as 282°9 — 14°1.

Since the publication of the catalogue the following fireballs and ordinary shooting stars have been observed at more than one station in England and I have been enabled to compute their real paths as under:

Date	Gr. M. T.	Mag.	Height at beginning miles	Height at end miles	Path miles	Velocity per sec. miles	Radiant		No. of observers
							α	δ	
1899 July 4	10 ^h 50 ^m	2	54	46	27	13	281°	— 16°	3
" 13	10 55	3	75	69	15	21	283	— 13	2
Oct. 2	8 24	♀	67	45	88	13	284	— 17	2
1900 Jan. 9	2 55	Fireball	59	23	174	—	280	— 12	10
July 24	10 49	3 × ♀	68	27	103	19	280	— 15	4

Allowing for the unavoidable errors of observation the radiant points are identical at 281°6 — 14°6 which is very close to the mean position given in the catalogue above referred to. It would appear that this stream south of λ Aquilae is capable of yielding fireballs of the largest

class as well as shooting stars of normal character. — I believe the maximum of the shower occurs in July (when the meteors move very slowly) but it showed signs of activity as early as February 20 in 1877.

Bishopston, Bristol, 1900 Aug. 4.

W. F. Denning.